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AUTHOR Santiago, Alfonso O.
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ABSTRACT

A research project investigated intended users' attitudes toward different possibilities in the development of a scientific lexicon for Tagalog. A survey was taken of 100 college students, 100 professors, and 100 practitioners in the fields of medicine, biology, chemistry, physics, and mathematics in the Manila metropolitan area. These 300 subjects were classified into two linguistic groups: native and non-native speaking Tagalog. The focus was on their choice among these lexicon options: (1) getting the exact or near-equivalent of the English term from current Tagalog; (2) borrowing directly from English, either without spelling alteration or with spelling alteration to conform to the Abakada alphabet; (3) borrowing from Spanish without or with spelling alteration; and (4) using the Maugnayin method of the National Science Development Board, characterized by borrowing from the Philippine vernaculars, coining or deriving, or retrieving of archaic terms, especially from Tagalog. English and Tagalog versions of the questionnaire were randomly distributed to protect against context sensitivity. Each discipline's lexicon included 20 technical terms. Option 1 was the most preferred, with 3b (with spelling alteration) and 2a (without spelling alteration) competing for second place. Identical preference patterns were found in each of the discipline groups and in each population group, but the native-Tagalog/nonnative-Tagalog distinction was not significant. A procedure for developing a scientific lexicon based on these results is recommended. (MSE)

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ED261557

The Elaboration of a Technical Lexicon of Pilipino

A Dissertation

Presented to the

Faculty of the Graduate School of the

Ateneo-Philippine Normal College Consortium

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

in Linguistics

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— A. O. S.

ABSTRACT

This study sought to find out how the intended users of Pilipino (Pil) would react to the different possibilities in the development of its scientific lexicon.

The different lexical elaboration possibilities assumed in this study, aside from the natural way of getting the exact or near equivalent of the English (Eng) term from Current Tagalog (CT), were as follows: (1) borrowing direct from Eng in the following manner: (a) without spelling alteration, coded E-1, and (b) with spelling alteration, to conform to the Abakada, coded E-2; (2) borrowing via Spanish (Spa) also in the following manner: (a) without spelling alteration, coded S-1, and (b) with spelling alteration, coded S-2; and (3) National Science Development Board's 'Maugnayin' way, coded M, characterized by borrowing from the vernaculars, coded V, coining or deriving, coded CD, or retrieval of archaic terms, especially from Tagalog, coded AT.

A survey of preferences on the above-specified lexical elaboration possibilities was conducted in the disciplines or fields of medicine (MED), biology (BIO), chemistry (CHE), physics (PHY), and mathematics (MAT), involving 100 college students (STUD), 100 professors (PROF), and 100 practitioners (PRAC) within the Greater Manila Area, making a total of 300 Ss who were classified into two linguistic groups -- Tagalog (TAG) and non-Tagalog (NTG).

The survey questionnaires were prepared in two versions (Eng and Pil) with randomized distribution of the versions among the respondents as a safeguard from possible context-sensitivity. The set of questionnaires for each of the five disciplines contained 20 technical terms, thus making a total of 100 terms.

The data gathered reveal that next to CT, both S-2 and E-1 are the two competing 'most preferred' options, with the former slightly favored over the latter. The phenomenal rise in rank of E-1 forms in this study as compared to the results of the Philippine Normal College-Language Study Center, Rivero-Labigan, and Sumayo studies, may mean that preference for these forms gets stronger as one goes higher in any sphere of knowledge.

The 'least preferred' options are M, E-2, and S-1, ranked downward in that order. It would seem that what was rejected in the E-2 and S-1 options was the spelling, considering that S-2 and E-1 came out as the two 'most preferred' options. On the other hand, what appear to have been unfavored in the M options were the unnecessary coining and retrieval of archaic words, and the arbitrary manner of borrowing from the vernaculars.

The data also show that euphemism is still an important mode of language behavior in Filipino culture, especially on matters pertaining to sex, considering that the Ss rejected taboo terms in favor of euphemistic terms.

Finally, the preferences of the different types of Ss in each of the following groups show identical patterns, the trend being similar to what has already been discussed earlier: (1) STUD, PROF, and PRAC, (2) MED, BIO, CHE, PHY, and MAT, (3) TAG and NTG. The differences in the preferences of the groups in (1) and (2) are statistically significant, while that in (3) is not. The significance in (1) may have been due to the difference in the preferences of the STUD group as against the PROF and PRAC groups -- the STUD group opting more favorably for E-1 options and both the PROF and PRAC groups opting more favorably for S-2. On the other hand, the significance in (2) appears to have been due mainly to the MED group opting more favorably for CT terms.

The study culminates in a suggested general procedure to be followed in the development of a Pilipino scientific lexicon.

— A. O. S.

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CHAPTER 1

INTRODUCTION

1.0 In 1974, when Pilipino was officially prescribed as one of the two principal media of instruction in Philippine schools — the other being English — (vide Department of Education and Culture Order No.25, s.1974), one of the serious problems that inevitably came up was the lack of technical terms in the language. It became quite obvious then that Pilipino would have to be intellectualized or modernized if it was to be a language capable of expressing the scientific and technological thinking of the Filipinos in the modern world. A major component of such modernization is the development of the lexicon, especially in the spheres of science and technology.

1.1 Development of a Pilipino Scientific Lexicon: Major Possibilities

The following are major possibilities or techniques that can be availed of in the elaboration of a Pilipino scientific lexicon:

1.1.1 Borrowing from English in the following styles:

1.1.1.1 No change in spelling of the borrowed term (E-1); e.g. chemistry.

1.1.1.2 Borrowed term respelled to conform to the Abakada or Pilipino alphabet (E-2); e.g. kemistri.

1.1.2 Borrowing via Spanish in the following styles:

1.1.2.1 The Spanish equivalent of the English term is taken with no change in spelling (S-1); e.g. quimica.

1.1.2.2 The Spanish equivalent of the English term is taken and respelled to conform to the Abakada (S-2); e.g. kimika.

1.1.3 Borrowing from the Philippine vernaculars (V); e.g. butod for nucleus, a Visayan word borrowed by the 'Lupon sa Agham' ('Lupon') of the National Science Development Board (NSDB).

1.1.4 Retrieving of archaic Tagalog terms (AT) from disuse; e.g. siha, meaning angle, as retrieved by the 'Lupon'.

1.1.5 Coining or deriving (CD); e.g. kapnayan, meaning chemistry, derived by the 'Lupon' from sangkap and hanayan.

1.2 The Problem

This study is chiefly concerned with ascertaining how the intended users of Pilipino would react to the above-mentioned possibilities in the elaboration of the scientific lexicon of Pilipino.

To be able to realize the objective, the following specific questions will have to be answered.

1.2.1 Which of the possibilities for lexical elaboration are most or least preferred by the intended users?

1.2.2 Confronted with an English technical term, which of the four borrowing styles -- E-1, E-2, S-1, and S-2 — will the intended users prefer?

1.2.3 Aside from directly borrowing English terms and indirectly borrowing English terms via Spanish, how will the intended users react to the following other possibilities for lexical elaboration?

1.2.3.1 Getting the equivalent or near equivalent of the English term from the following sources:

1.2.3.1.1 Current Tagalog

1.2.3.1.2 Archaic Tagalog

1.2.3.1.3 Vernaculars

1.2.3.2 Coining or deriving

1.2.3.3 Euphemisms for taboo terms on sex

1.2.4 Will there be differences in the preferences of each of the following groups with regard to the different possibilities of developing a Pilipino technical lexicon?

1.2.4.1 Students, professors, practitioners

1.2.4.2 Medicine, biology, chemistry, physics, mathematics

1.2.4.3 Tagalog, non-Tagalog

1.2.5 What guidelines can be formulated in the development of a Pilipino scientific lexicon?

1.3 Importance of the Study

The present bilingual education policy of the Philippine Government (vide Department of Education and Culture Order No.25, s.1974, and its supplement, Department Order No.50, s.1975), allocates separate and specific functions to English and to Pilipino as media of instruction.

Thus, the subjects which are considered technical and nonculture-loaded are to be taught in English, whereas the subjects which are considered nontechnical and culture-loaded are to be taught in Pilipino.

The rationale for allocating specific functions to the two languages was clearly expressed by Sibayan et al. (1975), thus:

> Domains having to do with family, social, and national life as well as everyday living, and domains having to do with the elements of Philippine culture will be articulated in Pilipino. Domains having to do with the international body of knowledge in science and technology will be articulated in English... The policy, if properly implemented, will ensure the continuing use of English as a language of wider communication and as a language of technology and the development and standardization of Pilipino as a means of articulating the ideals of the future.

This dichotomous allocation for Pilipino and English, as this researcher sees it, seems to be the most practical policy that any well-meaning language planner could conceive for the present needs of Philippine education. Historical determinism has acted upon the lives of Filipinos such that they cannot do away with either one of the two languages in their educational program and still expect optimal results.

The present bilingual policy, however, is not without merit and demerit. While the advantages expected to accrue from the use of both languages by reason of the policy are quite apparent (Sibayan, supra, p.4), some disadvantages which may still be undiscerned for the present could surface later on. That is, the restrictive application of English to technical and nonculture-loaded subjects could yet hasten its alienation from the masses, eventually limiting its use to only a thin upper class stratum of Philippine society (Myrdal 1968:81-2). A foreseeable consequence of this policy is that English would be relegated to a status not different from the other languages being taught in the schools only as a foreign language, a consequence which is not in accord with the rationale of the bilingual education policy cited above.

Conversely, the present bilingual setup could develop a nontechnical Pilipino language, a kind of language which would not be truly functional because limiting its use to nontechnical matters would deter its intellectualization. Generally, a typical Filipino does not express his acquired knowledge in capsules or even modules. In other words, he usually transcends various domains, mixing technical and nontechnical words, to express his ideas during a communication process.

The present policy should, therefore, be regarded only as an intermediate or transitional step towards developing Pilipino as at once a language of culture and of science and technology. In fact, a vision on the development of Pilipino was expressed by no less than Minister Gerardo P. Sicat of the National Economic and Development Authority (Sicat 1976:7) who said:

> Bilingualism...appeals to me as a temporary dichotomy that must be integrated in some way. I do not mean mixing English and Pilipino in some form of pidgin, but developing Pilipino so that it becomes a language of both authority and convenience, perhaps to displace English in its future acceptability. I am certain that the new Pilipino (language) will develop in its own uniqueness and aesthetic appeal to those of us who may feel ill at ease with the transition.

The formal use of Pilipino as a medium of instruction in the schools would no doubt accelerate its development, although in the meantime it may not yet serve as a language for science and technology. Such an arrangement would give Pilipino a chance to gradually become capable of handling science and technology courses in the schools.

As stated earlier, Pilipino can not yet effectively handle science and technology because it still lacks the needed technical vocabulary for the purpose. The problem, therefore, that besets Pilipino today is with respect to how the technical lexicon can be developed and elaborated in order to hasten its intellectualization; hence, this study.

In case, however, Pilipino would not displace English as a medium of instruction for science and technology within the foreseeable future, this study could nonetheless be of help to writers of instructional materials in Pilipino who are usually befuddled by the problem of how to borrow English words into Pilipino.

Moreover, this study could be of help to translators from English to Pilipino, an activity which has acquired momentum with the implementation of the bilingual education policy.

1.4 Scope and Delimitation of the Study

This study merely attempts to ascertain the preferences of college students, professors, and practitioners with regard to the different possibilities of developing a technical lexicon of Pilipino in the spheres of medicine, biology, chemistry, physics, and mathematics. It does not go further into inquiring from the respondents their reasons for liking or disliking certain terms.

The respondents' reactions to the items used in the survey are to be interpreted, therefore, as mere indications of the directions that the intended users favor or disfavor with regard to the enrichment of the technical vocabulary of Pilipino.

Some quarters could claim that not all of the items used in the survey could be considered technical; that terms which are more technical or more current should have been used in the survey instead. This, admittedly, is a limitation of the study because of the following constraints that had to be considered in the selection of every item:

Firstly, the term, for obvious reasons, should be spelled differently in each of the following option-types: E-1, E-2, S-1, and S-2. The medical terms carditis and meningitis, for instance, could not be included because they would be spelled the same in both E-1 and S-1; likewise so with the term adrenalin which would be spelled the same in both E-1 and E-2.

Secondly, the term or its equivalent should be found in the 'Maugnayin' book. The chemistry term stoichiometry, for instance, is apparently highly technical and may be considered suitable insofar as E-1, E-2, S-1*, and S-2 are concerned because it would be spelled differently in each of these four option-types. But the term is not listed in 'Maugnayin' so that it had to be discarded.

Thirdly, as many formatives as possible (see Appendix G) should be included in the 100 English scientific terms used in the survey to find out, as a peripheral study, if a pattern could be established in the manner of assimilating English formatives into Pilipino. An item could thus be considered suitable yet nonetheless have to be excluded because another item or items with the same formatives had already been included.

Fourthly, the eleven 'foreign' letters -- c, f, j, ñ, q, v, x, z, ch, ll, rr -- should as much as possible be included and spread among the items also to find out if they would be accepted by the respondents for scientific technical terms. In this study, only the Spanish letter ñ was not included because no scientific term containing that letter could be found by this researcher. (A sample of usages of the foreign letters is shown in Appendix H.)

Fifthly, there could of course be other possible sources in the elaboration of a Pilipino lexicon, like borrowing from other more developed languages of other nations, such as German, French, Russian, Japanese, etc. However, they were not considered as the study would have become unwieldy. Besides, if technical words from international languages are ever borrowed into Pilipino, they are borrowed through the English language.

1.5 Definition of Terms

The following terms are defined conformably with their use in this study:

1.5.1 Language modernization. One of the three dimensions for measuring 'language development' (the other two being graphization and standardization) that deals with the development of vocabulary and forms of discourse (Ferguson 1968:27).

1.5.2 Language standardization. The process whereby one variety of a language becomes widely accepted throughout the speech community as a supradialectal norm -- the 'best' form of the language — rated above regional and social dialects (Ferguson 1968:31).

1.5.3 Intellectualization. The requirement of increasing accuracy along an ascending scale of functional dialects from conversational to scientific (Garvin in Hymes 1964:521). This may have some similarities with Haugen's elaboration of function (1966:249-52) and also with Ferguson's modernization (in Fishman 1968:27) which includes expansion of the lexicon and development of new styles and forms of discourse.

1.5.4 Tagalog. A term used to refer to either the language or the people: the Philippine language variety that was made the basis of the national language (now called Pilipino), or a Filipino citizen whose first language is any of the Tagalog varieties, such as Manila Tagalog, Bulacan Tagalog, Batangas Tagalog, Nueva Ecija Tagalog, etc.

1.5.5 Non-Tagalog. A Filipino citizen whose first language is not Tagalog -- it may be English, Spanish, Ilocano, Cebuano, Chavacano, Chinese, etc.; he can, however, also communicate in Tagalog.

1.5.6 Consistent orthography. A spelling system having a 'one-to-one correspondence between each phoneme and the symbolization of that phoneme'; i.e., there is a 'separate symbol to each unit proved to be phonemically distinct' (Pike 1964:208). Pilipino has a consistent spelling system because every phoneme in this language (with the exception of the glottal stop - ed.) is regularly represented by only one symbol; e.g. kamay, siko, batok.

1.5.7 Inconsistent orthography. A spelling system wherein a single phoneme in a language can be represented by more than one symbol (Gelb 1963:225, Bloomfield 1956:501). English has an inconsistent orthography because the phoneme /k/, for instance, can be represented by more than one symbol, such as in kit, car, squatter, cholera, chick, burlesque, etc.

1.5.8 Technical or Scientific term. An English term that when read or heard in isolation is recognized to belong to a particular sphere of knowledge. This terminology is loosely used in this study in the sense that some of the terms employed in the survey questionnaires may not strictly belong to one specific discipline or sphere of knowledge.

1.5.9 Current Tagalog. A term strictly used in this study to refer to terms that do not have traces of foreign markedness. Medisina, for example, is not considered CT for purposes of this study because it is recognizable to Filipinos as a Spanish loanword; also matematisyan as an English loanword.

1.5.10 Intended users. A term used in this study synonymously with 'target population'. Specifically, it refers to a group of people who are identified as having specialized or are still specializing in a particular discipline or sphere of knowledge, such as a medical student, a mathematics professor, or a chemist (chemical practitioner).

1.5.11 Random sampling. The selection of cases from the population in such a manner that every individual in the population has an equal chance of being chosen (Guilford 1973:122).

1.5.12 Purposive sampling. A sampling technique wherein a sample is 'expressly chosen because...it mirrors some larger group with reference to a given characteristic' (Garret 1967:207). For instance, 'newspaper editors are believed to reflect accurately public opinion upon various social and economic questions in their sections of the country'. In this study, the responses of the sample of 'practitioners' are taken to mean that they 'mirror' the preferences of a larger group in their respective areas of specialization.

1.5.13 Pilipino. This is the Tagalog-based national language. The 1935 Philippine Constitution provides that 'the National Assembly shall take steps toward the development and adoption of a common national language based on one of the existing native languages'. Tagalog was made the basis in 1939. In 1959, the department of education ordered that the national language shall be called Pilipino 'to impress upon the national language the indelible character of our nationhood' and presumably to erase the regional connotation of the term Tagalog as the basis of the national language.

1.5.14 Filipino. This is the envisioned national language in the 1973 Revised Philippine Constitution, a 'much more liberalized, more flexible and more representative language', a further development of Pilipino as the national language (Marcos 1974:31).

NOTES

*There is no Spanish dictionary for chemistry available to this researcher. A Spanish-sounding term, however, could easily be derived from the English term, such as stoichiometria since the English combining form -metry usually corresponds with the Spanish -metria.

CHAPTER 2

BACKGROUND OF THE STUDY

2.0 Introduction

This chapter attempts to present a capsule history of the development of Pilipino, highlighting the aspects that pertain to the type of national language being developed, specifically those that deal with purism, spelling, the Abakada, borrowing, and other issues related to the present study.[1]

This chapter also seeks to show that the manner of development of a lexicon for the national language has been a perennial problem, triggered by the publication of the 'puristic' Balarila ng Wikang Pambansa for use in the elementary and high schools as early as 1939, two years after Tagalog had been officially adopted as the basis of the national language.

This researcher believes that the subject of intellectualization of Pilipino can be better appreciated if viewed against the backdrop of the lexical development in the national language. It may be stated that the study is in no way concerned with the national language controversy, as its purpose is chiefly to throw light on the development of the technical lexicon of Pilipino as a language. This researcher merely seeks to present herein the opposing views held by authorities and specialists.

This chapter culminates with a resumé of issues on the lexical development of Pilipino as this researcher sees them from a distance.

2.1 The Contact Situation

The Philippines is a developing country in Southeast Asia which was successively dominated by at least three foreign countries — Spain, the United States, and Japan. For many hundreds of years it underwent not only political but also cultural and economic colonization.

The two countries, however, that have left indelible imprints of colonization in the lives of the Filipinos are Spain and the United States (Panganiban 1970:21).

The extent of the Filipinos' contacts with Spain and the United States is mirrored in the indigenous Philippine languages.[2] In fact, to an ordinary Spanish or American listener, Pilipino, the Tagalog-based national language, will not sound altogether foreign because he will be able to retrieve a medley of Spanish or English words woven into its intricate system of affixation. He may even suspect that Pilipino is an Indo-European language, belonging to the same family of which Spanish and English are part (Goulet 1971:1-2).

A little knowledge of Philippine history, however, will make one understand that the Spanish and English words interspersed in Pilipino utterances are merely loan words from the two foreign languages; that such is the result of the contacts of Tagalog with Spanish for almost four centuries and subsequently with English for more than half a century.

Theoretically, the longer the period of contact, the greater would be the linguistic influence of the colonizer's language on that of the colonized. During the almost four centuries of Spanish rule in the Philippines, the colonizer's language could have completely nativized and replaced the native languages. This, however, did not take place. Frake (in Hymes 1972:223), in tracing the origins of the Spanish creoles in the Philippines, says:

> In the Philippines, in spite of the rapid Spanish conquest, almost total conversion to Christianity, and over three hundred years of occupation, the Spanish language failed to establish itself. Spanish replaced no indigenous Philippine language, and its role as an auxiliary language was sufficiently tenuous that it was quickly supplanted by English after the American occupation. Today, apart from the many Spanish loan words in Philippine languages and few speakers of Spanish in the upper echelons of society, the linguistic legacy of Spain in the Philippines is limited to the existence of several communities that speak a Spanish creole language[3] as their mother tongue.

The extent of influence of Spanish on the indigenous Philippine languages is in sharp contrast with that of English 'which became more widespread even after only two dacades of American rule in the Philippines' (Forbes 1928:I:416). In a relatively short period, English became the medium of communication. English-speaking Filipino teachers gradually replaced American educators. And after a quarter of a century of American occupation, the Philippines produced a good crop of Filipino writers and speakers of English, which was fast becoming the common tongue from Aparri to Jolo (Kiunisala 1963:58).

The differences between the Spanish and the American colonial philosophies, in general, and educational and language policies, in particular, may perhaps account for the difference in impact of the two languages on the Filipinos. The Spanish era in the Philippines may be characterized simply as one of 'raising the cross and thrusting with the sword' and preserving Spanish as an aristocratic language available only to the few elite and not to the 'Indios'. On the other hand, one of the first acts of the Americans when they colonized the Philippines was to provide education to the Filipinos and in so doing teach them the English language side by side with the principles of democracy on a massive scale (Forbes, 49:395:II, Appendix VII).

There were, to be sure, other factors that characterized the nature of Spanish and American colonization in the Philippines, besides their differences in policies and attitudes toward language. One of them was the nature of contact itself, i.e., the incentive to learn, where the impact of the English language and American culture was greater. Another factor was

the quantity of instructional reading materials; there was a dearth of such materials in Spanish, whereas there was a deluge in English (Phelan 1959:132).

Presently, after only slightly more than half a century of contact with English, and in spite of the fact that the Philippines is no longer under American domination, English remains as the principal medium of instruction in the Philippines. This may be attributed to the fact that English continues to be an international language — the language of education, science and technology, diplomacy and foreign relations -- serving as the Filipinos' link with the outside world. Moreover, unlike the Spaniards, the Americans left no legacy of hate among the Filipinos. Hence, the Filipinos continue to look to the English language as a source of knowledge and means of advancement. This has been confirmed in a study conducted by Tucker (1968:16-7) among sophomore students of the Philippine Normal College who associated the acquisition of skills in English with success and advancement in life, showing that a Filipino who is 'not skilled in English would be unable to enter such professions as teacher, doctor, secretary, etc.' Tucker further states that in the Philippines, 'social mobility depends upon the acquisition of skill in English. Higher education, better employment opportunities, and travel abroad are easily accessible only to those who possess the necessary skills in English'.

Other solid proofs that English still holds a premier status in the Philippines are as follows: 1) all Presidential Decrees, as well as statutes, have been promulgated in English; 2) the 1973 Philippine Constitution was originally written in English although it was officially promulgated in English and in Pilipino; it provides that 'in case of conflict, the English text shall prevail'; 3) in the convention of the Batasang Bayan (held at Malacañang Heroes Hall, October 29-30, 1977), English was the language used by the delegates who represented the different ethnic groups or regions of the country; and 4) most deliberations and all measures presented at the Batasang Pambansa in its sessions in 1978 were in English, although the assemblymen had been exhorted to learn to speak Pilipino. These are clear illustrations that Pilipino as a national language has not yet taken over the political functions of English.

2.2 The Development of Pilipino

The need for having a common language dawned upon the Filipinos toward the end of the 19th century when communication among the 'insurrectos' or freedom fighters of the Ilocos, the Visayas, and the Tagalog provinces was possible only with the help of interpreters (Kiunisala 1963:2). Apparently, the multiplicity of languages spoken by the different ethnic groups was one of the major stumbling blocks to the Filipinos' efforts to liberate their countrymen from Spanish domination. Under the circumstances, the Filipino leaders were obliged to employ Spanish in most of the laws of the first Philippine Republic, and to use Tagalog in some decrees.

Then the United States supplanted Spain in the colonization of the Philippines. Through legal means, the Filipinos worked for their independence. After a transition period of ten years, known as the Commonwealth Period, the Filipinos gained their independence in 1946. The opportunity to develop a national language could now be realized. In fact, the framers of the 1935 Philippine Constitution, imbued with the vision of their forebears, mandated the Commonwealth National Assembly (Article XIV, Section 3) to 'take steps toward the development and adoption of a common national language based on one of the existing native languages'.

A year later, in consonance with the constitutional provision, Commonwealth Act No. 184 was passed, establishing the National Language Institute (NLI -- later changed to Institute of National Language (INL) -- and giving it the authority to study and analyze the principal Philippine languages and to choose therefrom the basis of the Philippine national language.

Another year later, in 1937, the seven members of the Board of the INL, six of whom were non-Tagalogs[4], recommended Tagalog as the basis of the national language. The INL Board believed that Tagalog best fitted the requirements stipulated by law as regards structure, mechanics, literature and number of speakers.

The decision of the INL Board, apparently, was not tainted by regionalism, although President Quezon's advocacy of Tagalog might have influenced it.

2.2.1 Puristic Balarila: Precursor of Language Controversy. Two years later, the INL, in conformity with Commonwealth Act 184, published a grammar book titled Balarila ng Wikang Pambansa and a Tagalog-English Vocabulary. The two books were to be used in the schools. This was the beginning of the long drawn-out language controversy because a puristic tendency was very evident in the first two products of the INL. The term balarila in the title of the book itself, for example, was derived from bala 'bullet' and dila 'tongue' (Panganiban 1970:14). As an alternative, the Spanish word gramatica (gramatika) could have been borrowed.

That the book was really puristic is further evidenced by pages 13 and 14 where even the proper names were respelled according to the 20-letter Abakada in spite of the provision in Commonwealth Act 184 that '... spelling of family names of foreign origin and form used by Filipinos shall be preserved in order not to render the identification of persons difficult'. Examples: Huse instead of Jose, Suwan instead of Juan, Kintin instead of Quintin, Maksimo instead of Maximo, Kalisto instead of Calixto, etc.

In fact, it is common knowledge among Filipino language scholars that when a copy of the Balarila was brought by the members of the INL Board to Malacañang and shown to President Quezon, he angrily blurted out his favorite curse word in Spanish and almost threw the book in the Pasig River[5]. That was after his vain efforts to pronounce the word balarila correctly and after briefly thumbing through the pages of the book and

occasionally lip-reading a passage here and there with knitted eyebrows. President Quezon was furious because if he, a Tagalog, could not understand the book, how much more could the rest of the Filipinos, especially the non-Tagalogs, understand it?

Meantime the stipulated date for the publication of a grammar book for the national language would soon lapse and to write another one was already impossible. Actually, the Balarila did not even have a section on syntax.

Sibayan (in Fishman 1974:224), however, has this to say about the Balarila:

> Under the able leadership of Lope K. Santos, one of the Philippines' best Tagalog scholars at the time, ... a grammar titled Ang Balarila ng Wikang Pambansa (was produced) ... Given the state of the art of grammar writing at the time and the speed required to comply with the Presidential directive, the grammar was an excellent product, though having it officially accepted has made it difficult to introduce improvements as better grammars have become available.[6]

At any rate, the Balarila and the Vocabulary were used in teaching the national language in the schools. But as the years went by, it became obvious that the 'national language being taught in the schools was puristic -- neither Tagalog-based (i.e., the national language should incorporate many loans from other Philippine languages and also from foreign languages) nor Tagalog as spoken and understood by the Tagalogs' (Sibayan 1967:136, esp. footnote).

Yet the INL should not be held solely blameworthy for this manifest attitude regarding the manner of development of the national language. Its actuations must have been dictated by what had been provided in Section 8 of Commonwealth Act 184, which reads as follows:

> Special attention shall be given to the purification and enrichment of the National Language in accordance with the following procedures:
>
> (2) To purify the vocabulary of the national language, the National Language Institute shall safeguard the proper meaning and use of the words and expressions of the national language and shall cleanse the same of unnecessary foreign terms, words, and constructions. (Underscoring supplied.)

To the Filipinos who had been dominated by foreigners for so long a time, any planning on language would naturally be tainted with nationalistic undertones, usually a manifestation of the subconscious among freedom-hungry minds. This merely confirms what Fishman (1972:66) says, that 'nationalistic language planning reveals a pervasive abhorrence of foreign influence'. Foremost in the minds of the language planners and implementors during those times must have been (to borrow a term from Fishman again) the 'authentication' of the national language; that is, if a

national language had to be developed, it had to be one that was recognizably indigenous, free from admixture and adulteration. And this is clearly evident in what INL Director Jaime C. De Veyra stated in the foreword of the Balarila:

> Ang may-akda (referring to Lope K. Santos) ay napilitang gumamit ng mga bagong salita, upang tayo'y mahiwalay man lamang kahit sa diwa, sa pagkaalipin ng mga balarilang banyaga. Ang balarila ... palasurian, palaugnayan, palabigkasan, at palatitikan ay maipalalagay na mga bagong salita, pilibhasa sa wikang katutubo ay wala tayo ng gangganyang mga bigkasin. Lalo kayang tumpak na gamitin ang mga salita na ring pinalalaganap ng mga mangangastila at mang-iingles? Hintayin nating mga pangyayari na rin ang magpasiya.

De Veyra had hoped that the terms used by Lope K. Santos would survive. Indeed at present, the following terms together with most of the so-called puristic terms of Santos, are already commonly used: pantig (syllable), pang-angkop (ligature), pantukoy (article), pangngalan (noun), pang-uri (adjective), panghalip (pronoun), pandiwa (verb), pang-abay (adverb), pangatnig (conjunction), pang-ukol (preposition), etc.

At any rate, it might be said that the Balarila of Santos is a good example of what Fishman (1974:22-3) says in summing up the 'social trouble and travail' that accompany language planning processes:

> Every one of the system-building or revising triumphs of language planning has been carefully cloaked in sentiment, has appealed to authenticity rationales, has claimed indigenousness. Obviously, a speech community wants its language to be more than neat and trim and handy. It also wants its language to be theirs, i.e., like them in some way, reflective of their individuality in some way, protective of their history in some way.

The 'authentication' efforts, however, appeared to have been carried too far by the INL; they were interpreted as leaning towards 'purism' and were thus repudiated by even the simon-pure Tagalogs themselves.

For instance, former Senator Francisco Rodrigo, a Tagalog writer and radio commentator who has translated Cyrano de Bergerac into Tagalog, vehemently berated the schools for propagating a national language which was so puristic that, much to his embarrassment, he could not help his son with the latter's homework because of so many strange words which he could not comprehend, such as tuldok, kuwit, tuldukuwit, parirala, panaklong, etc. Senator Rodrigo wrote (1963:3):

> Was my face red when I saw the lessons! I could not get a passing mark if I were to take a test on it. To be more honest, I would not rate even 40 percent. In fact, I could not even understand the words which I read... I felt quite embarrassed.

> There I was, supposed to teach Tagalog grammar to my son, and I ended up by asking him what those queer-sounding words meant.

Ex-Senator Rodrigo claims that the basic philosophy behind the establishment of a national language is to have a common medium of expression that is easily understood, learned and used by all segments of the population. It is for this reason, he further asserts, that the First Constitution uses the words 'development and adoption' of a common national language and not the words 'invention and imposition'. This is also one of the reasons, he says, why the the framers of the 1935 Constitution deemed it advisable to provide that the national language be 'based on one of the existing native languages'.

The former Senator believes that the teaching and learning of the national language would be much easier if the people were to use words already well known to them, like gramatika instead of balarila, diksyunaryo instead of talatinigan, koma instead of kuwit, kolon and semikolon instead of tutuldok and tuldukuwit, etc. He even radically proposes that 'we should follow what President Quezon wanted to do from the very beginning: Throw the Balarila ng Wikang Pambansa into the Pasig River and start all over again with an entirely new approach'. The Balarila, he concludes, will forever be an obstacle instead of a help to the propagation and development of the Pilipino language. Unless we change it radically and basically, we shall forever be chained to a 'shortsighted, isolationist and jingoistic policy which renders the study of our language not only difficult but repulsive to our own people'.[7]

Even before 1963 when former Senator Rodrigo expressed his views in the Philippines Free Press, Secretary of Education Jose E. Romero, evidently aware of the raging national language controversy, had already issued Department Order No.19, s.1959, to the effect that henceforth the national language would be called Pilipino 'to impress upon the national language the indelible character of our nationhood'. It would seem, however, that the change had been designed to erase the issue that the language being developed by the INL and the schools was puristic and 'presumably to eliminate the regional connotation of the term Tagalog (Sibayan 1974:225).

The terminological shift did not pacify the critics. Soon they raised another issue: Pilipino should be Filipino — another way of saying that Pilipino is still Tagalog.

By then it became obvious that the issue on purism was being beclouded by ethnic loyalty and colonial mentality on the part of some educated Filipinos. With a touch of sarcasm, they claimed that after having been liberated from three colonial masters — Spain, the United States, and Japan -- here came another colonizer: the Tagalogs. They deeply resented some Tagalistas who, they claimed, behaved as if they were the self-anointed and God-sent proprietors of the national language, Tagalogs who equated nationalism with fluency in Pilipino.

Their undisguised vehemence in condemning the Tagalogs, however, was interpreted by those on the opposite camp as a mere cathartic outburst of emotions, for in reality, as products of an alienating system of education, they were advocating nothing but English — the language that had moulded them into what they were.

Even in a very recent survey, Silliman (1977) says that a number of her respondents expressed the view that a national language need not be one that is indigenous to the Philippines, implying that English should be the national language. Also, during the national conference on 'Language Planning and Development in the Philippines'[8] Casilda Luzares, a native of Cebu who was one of the panelists, claimed that when she was in the Visayas recently she was asked if there is any law in the Philippines which prohibits the adoption of a foreign language as the national language. This is reminiscent of an erstwhile movement which quickly fizzled out, that the Philippines be ceded or federated as one of the states of the United States, like Hawaii.

Regarding ethnic loyalty, Sibayan (1974:250–1), in assessing the thoughts and sentiments expressed by the 1972 Constitutional Convention delegates in terms of the worldwide search for identity by peoples of emerging or developing countries, of which the Philippines is one, has this to say:

> It is clear that while they identify themselves with their ethnic languages, languages they have intimate ties with, they have not yet identified themselves with a language that is based on a 'rival' Philippine language. It is not unfair to say that it is this jealousy of the 'advantages' that they feel are given to Tagalog speakers that made them reject the language ... The search for identity with symbols like language carries with it so many emotional involvements that even the educated human mind cannot seem to transcend ethnic or parochial attachments.

2.2.2 Language Issue, a Full-Scale Controversy. The years during the sixties saw the surge of resistance becoming stronger against the brand of national language being propagated by the INL and the schools. On February 8, 1963 (Constitution Day), less than a month after the Free Press' special issue on language, Congressman Inocencio V. Ferrer, a Visayan, filed a case in court with the following as respondents: Jose Villa Panganiban, Director of the Institute of National Language; Alejandro R. Roces, Secretary of Education; Emmanuel Pelaez, Secretary of Foreign Affairs; and Carlos P. Romulo, President of the University of the Philippines. The complaint in effect stated that the language which the respondents were propagating was pure Tagalog; that this was also what they called 'Pilipino'; and that the respondents were cheating the people in thus developing and propagating Tagalog as the national language when Tagalog was only intended to be the basis.

The case, however, was dismissed (by Judge Gregorio T. Lantin, Court of First Instance, Manila) in a decision, the dispositive part of which was that the respondents' position in the development of the national language was in accordance with law and the history of the development of other languages of the world, hence they were not culpable (Pineda 1965:3-4).

The agitation, however, did not ebb in spite of the Court's decision upholding the position of the INL. A concrete manifestation of the undiminished resistance against puristic Pilipino was the experiment conducted by the Taliba newspaper sometime in 1967.

The Taliba, one of the oldest vernacular dailies that used to conform with the spelling rules of the Balarila was part of a newspaper chain owned by the Manila Times Publishing Company. Its average daily circulation in 1967 was no more than 28,000 in spite of an estimated more than two million Tagalog readers in the metropolitan area alone. The publisher, Joaquin Roces, surmised that the reason for its comparatively low circulation was that it was failing to communicate with its readers owing to its use of pure, formal Tagalog.

Accordingly, publisher Roces launched an experiment by adopting a mixture of easy Tagalog and foreign words in their original spelling which had entered the language through frequent and popular usage. The experiment was so successful that the circulation of Taliba soared by 30 percent (Roces 1967:5).

Then on March 6, 1967, Congressman Aguedo F. Agbayani, Chairman of the Committee on Education of the House of Representatives, delivered a speech imputing failure to the INL in the develpment of a national language as prescribed by law. Agbayani said in part:

> The Institute of National Language, after these past 30 years, has not truly developed a national language ... the Institute having accepted a very insignificant number of words from the other native dialects and has insistently refused to revise the 20-letter alphabet, the Abakada, in order to accommodate foreign words.

Agbayani, like Rodrigo, accused the 'purists' of developing a language which was not understandable even to the Tagalogs themselves. The Congressman cited the rise in circulation of Taliba from 19,000 to more than 65,000 in less than ten months after the newspaper switched to functional Pilipino from the puristic, classical Tagalog. The rise in circulation, Agbayani contended, was an eloquent proof that purism had no place in the development of Pilipino.

Agbayani's speech which subsequently appeared in the Manila Times (March 10, 1967) prompted the Committee on Education and the Committee on National Language of the House of Representatives to conduct joint hearings to reexamine the procedures used in the development of Pilipino.

Dr. Jose Villa Panganiban, who was then the INL Director, testified before the Joint Committee that everything being done by the INL was in accordance with the provisions of law. Carlos P. Romulo, as President of the University of the Philippines and concurrently Secretary of Education, also testified and proposed a four-point program for the development of the national language: 1) conduct an authoritative inventory of borrowed foreign words and present corresponding linguistic rules of borrowing at the end of each five or ten-year period; 2) for the duration of each subsequent period, allow the process of natural selection of new words to be borrowed and conduct a debate among scholars, linguistic societies, and experts; 3) compile and publish as soon as possible a comprehensive dictionary of Pilipino to ensure a continuous and orderly growth, and to record such growth, of the national language; and 4) authorize the use of the national language as medium of instruction at the elementary, secondary, and collegiate levels (Romulo 1967 as summarized by Sibayan 1974:234-5).

The speech of Congressman Agbayani must have been inspired by the running feud between Katas Editor Lacuesta and INL Director Panganiban, as may be gleaned from the editorial of that journal (August 1971 issue). The editorial says in part:

> From 1961 to 1963, Katas was under the influence of the Institute of National Language and so its language was puristic abakada Tagalog. In its June 1964 issue, however, Katas[9] raised the banner of revolt against the Institute of National Language standard and began to write in the Manila Lingua Franca. The Katas lead was followed by the other mass media, including the Taliba dailies. Soon, this mixed Manila language which we call 'Filipino' as distinguished from the INL's 'Pilipino' (puristic abakada Tagalog) was in a state of riotous bloom. The mass media threw into the Pasig River the 'Balarila ng Wikang Pambansa' of Lope K. Santos, doing exactly what Quezon wanted many years ago when the first copy was presented to him for approval.

Some years after the speech of Congressman Agbayani and after subsequent hearings conducted on language, a bill (H. B. No.11367) was filed in Congress providing among other things the abolition of the INL and its replacement by another body to be called Akademya ng Wikang Pambansa. The bill also provided the addition of the following letters to the 20-letter Abakada: c, ch, f, g̃, j, ll, ñ, q, rr, v, x, and z (Polotan 1966:7).

It was very obvious at that time that much opposition had been built up against the INL. Yabes (1974:4), who was an English professor at the University of the Philippines, likewise claimed that the development of the national language would have been more rapid, steady, and harmonious if the leaders of the movement, especially those whose native language was Tagalog, had not been suffering from shortsightedness. At best, Yabes claimed, they were insular in mentality; at worst they were provincial or parochial.

2.2.3 The INL's and the Purists' Side of the Issue. The INL and individuals identified by the 'antipurists' as 'Tagalistas', on the other hand, did not take the invectives and accusations of their critics without raising a hand. Thus, the late Jose Villa Panganiban, who was then INL Director, answered his critics on the issues raised against the Institute. On the issue of purism, he explained that there was no pure language being spoken by any civilized people in the world, and that Tagalog, with all the influences of factors traceable to the eleventh century, could not possibly remain pure. Of course, Panganiban pointed out, Pilipino, being Tagalog-based, would sound like Tagalog but it would not be so all the time as Filipinos would develop it naturally through borrowings from other languages, be they indigenous or foreign, and through other known processes in language development (Panganiban 1970:182).

As to the issue of spelling and the 20-letter alphabet (invariably called by the anti-purists the 'Tagalog Abakada' or 'atavistic Abakada'), Panganiban explained that its composition was in itself a recent product of the fluctuating development of the Pilipino system of writing after it had passed through modifications and changes brought about by easily traceable historical, educational, literary, and linguistic influences since the seventeenth century.

Panganiban pointed out that the actual composition of the current Pilipino writing consisted of two parts:

First, the Romanized Abakada consisting of 20 letters: a, b, k, d, e, g, h, i, l, m, n, ng, o, p, r, s, t, u, w, y. These letters are used to spell common words, be they indigenous or assimilated loan words.

Second, borrowed letters from English and Spanish writing systems, composed of 11 letters: c, ch, f, j, ll, ñ, q, rr, v, x, z. These letters are used in unassimilable borrowed proper and technical terms mainly from Spanish and English.

Panganiban explained further that the Pilipino writing system is consistent in the sense that it follows the simple rule of one letter, one sound. In other words, there is a one-to-one correspondence between the significant sound or phonemic unit of the language and the symbol or letter. It is different from the inconsistent English writing system wherein a letter or symbol can represent multiple sounds.

The respelling of borrowed common words to conform to the Abakada, according to Panganiban, was mistakenly interpreted by some people as puristic and/or atavistic. Every language, according to him should have its own system of rules on spelling to follow in borrowing loan words, especially from languages that do not use the Romanized system of spelling.

Paraluman Santos-Aspillera, daughter of Lope K. Santos himself, the author of the puristic Balarila, had the following to say on the so-called 'puristic abakada' which is virtually in accord with Panganiban's statement:

> The Institute of National Language Board in 1939 decided to adopt /c, ch, f, j, ll, n, q, rr, v, x, z/ from Spanish and English alphabets to be used particularly in the names of persons and geographical places ... The writing system of Pilipino, therefore, had from the very beginning consisted of the original romanized abakada and eleven (11) characters adopted from Spanish and English. There has been no exclusion as the Philippine romanized writing system (not the alphabet) consists of thirty-one (31) characters, twenty (20) of which are based on native phonology and eleven (11) taken from influencing cultures (Aspillera 1968:8-9).10

One serious problem that besets the Filipinos with regard to orthography, as this researcher sees it, is how to treat borrowed words, especially those from English. The problem does not surface in the oral or spoken phase of the language. The moment, however, when what one says orally is written down, the problem suddenly presents itself. Should one retain the spelling of borrowed words or write them according to the Balarila rules on spelling — that is, if the words themselves are not rejected and replaced with other words by the user?

This phenomenon confirms what Fishman, Ferguson, Das Gupta (1968:29f) said: '... the use of writing adds another variety of language to the community's repertory'. They further wrote:

> Linguists like to point out that speech is primary and writing secondary and that written language is always in some sense a representation of speech. Although this is true in a general way, ... the fact is that writing almost never reflects speech in an exact way — written language frequently develops characteristics not found in the corresponding spoken language, and it may change along lines quite different from changes in the spoken language. After the spread of writing, varieties of the spoken language can no longer be described in vacuo; they will interact with the written form to a greater or lesser degree.

The foregoing observation is true in the case of Pilipino. Spoken Pilipino has some degree of difference from written Pilipino, i.e., borrowed words which are normally acceptable to an ordinary Filipino in spoken form will be rejected by the same individual when shown to him in written form. In a simple study conducted by this researcher involving 40 students at the University of the Philippines and another 40 students at the Philippine Normal College, words like Iprinopos, pagdebelop, madiskas, inaprub, adapsyon, etc. were rejected by the same students who used them in their oral speech (Santiago 1976:96-7).

This brings us to the point where some of the critics of Pilipino might have been referring to the spoken rather than the written variety of the language.

Ponciano B. P. Pineda (1970:14;28-30), current INL Director, in his own fashion classified the critics of the national language into three groups:

2.2.3.1 'Salumpuwit' and 'Salipawpaw' Critics. This group, according to Pineda, is also known as the 'antipurists'. They claim that the people summarily reject 'puristic Tagalog', citing half in jest salumpuwit and salipawpaw as ready examples. They are the same group of people who contend that the national language should be an amalgamation of all the indigenous Philippine languages and the influencing foreign languages like English and Spanish; and that the national language should first be developed before it is taught in the schools. This group advocates artificial mixing of languages, similar to the invented Esperanto, Volapuk and El Mondo languages which, of course, have not survived.

2.2.3.2 Prophets of Darkness. This group is largely composed of writers and professors in English, and of some linguists. They claim that Pilipino is not yet developed as to be capable of handling intellectual subjects, especially those that are highly technical and scientific, considering that there is not even an encyclopedia in Pilipino. They further claim, according to Pineda, that the Filipinos will be cut off from the mainstream of modernization, since the world's knowledge accumulated through the years is available to Filipinos only through English. And to translate the world's knowledge into Pilipino will be impractical, expensive, and time-consuming. Inadequacy, Pineda pointed out, is not in the language per se, but in the user. Moreover, the national language that is developing now is not for the present only but for succeeding generations.

2.2.3.3 Regionalists. These are the non-Tagalog ethnic loyalists, Pineda stated. Educated as they are, they cannot shed off their ethnicity such as to accept Pilipino as a national language over and above their first and/or regional languages, claiming that their own languages are just as good if not better than Tagalog. This group, according to Pineda, reasons this way: It is better not to have an indigenous national language at all than to allow the Tagalogs to enjoy an advantageous position over non-Tagalogs. It is better to have English so that everybody is on equal footing, Tagalogs and non-Tagalogs alike.

Gonsalo del Rosario, Vice-President of the Pamantasan ng Takarang Araneta (Araneta Foundation University), proponent of 'Technical Pilipino' as epitomized in the NSDB's Maugnaying Talasalitaan book, and identified by his critics as one of the avid 'Tagalistas', also contended that 'no one in his right mind should accept the word 'purism' in any language, most of all the Tagalog language'. He bewailed the fact that although Tagalog showed great facility in having borrowed words from Sanskrit, Arabic, Malay, and Chinese in the past, and from Spanish, English and other modern languages at present, the myth of purism is hard to eradicate. Some people, according to him, have seized upon this pseudo-issue to wage a 'holy war' against certain Pilipino writers. Del Rosario (1967:5-6) said further:

> The virulence of their criticism reminds us of the harsh persecution during the times of the Spanish Inquisition, of the witch hunts at certain periods of American politics. In all these cases, there were emotional symbols which certain types of people did not care to understand; they merely reacted with the unreasonableness of the mob ... 'Purism vs. anti-purism' is a false controversy and that, the real confrontation should be between 'consistency' and 'inconsistency' in the use of Pilipino. Those of us who are falsely called 'purists' are really consistents, and our detractors are not 'anti-purists' but inconsistents.

Consistency, Del Rosario (1968:6-7) explained, is 'agreement or harmony of all parts of a complex system among themselves, or of the same system at different times'. Extending this definition to language, he explained that a living language has the inherent power of assimilating those elements that can be made consistent, and of rejecting those elements that cannot be made to conform with its fundamental organization and structure. And these things happen, according to him, even without the conscious knowledge of the users of the language.

This position of Del Rosario is in line with that of Sapir (1921:210-15):

> The borrowing of foreign words always entails their phonetic modification. There are sure to be foreign sounds or accentual peculiarities that do not fit the native phonetic habits ... (but) the highly significant thing about such phonetic inter-influencing is the strong tendency of each language to keep its phonetic pattern intact.

It also conforms with the claim of Bloomfield (1933:453) that 'a loanword is usually subjected to the system of the borrowing language', subsequently reaffirmed by Haugen (1959:217) who stated that:

> ... loanwords ... incorporated into the utterances of a new language, must be fitted into its grammatical structure. This means that they must be assigned by the borrower to the various grammatical classes which are distinguished by his own language.

True enough, Tagalog has maintained its morphological system and has imposed its patterns on the donor languages; even after the almost four centuries of contact, for instance, with Spanish (Goulet 1971:91).

2.2.4 The Provisions on Language of the 1973 Constitution. The national language controversy in the late sixties became even more acute during the Constitutional Convention (ConCon) in 1971-1972. Sibayan (in Fishman 1974:245-51) vividly describes and objectively diagnoses what transpired in the ConCon regarding language. He writes:

> No event in Philippine history has brought to a sharper focus the problems and difficulties, the emotional ties involved with language among Filipinos than the ConCon. When the ConCon started to work ... it promptly got snagged on the subject of what language to use in its deliberations and what language the Constitution was to be written in.

Sibayan states that the controversy was aggravated by the 'over-eager' advocates of Pilipino who irritated the non-native speakers of Tagalog (who themselves composed the majority) by stubbornly speaking and debating in Pilipino. The Committee on National Language of the ConCon conducted hearings on the language problem for several weeks. As if to spite the Tagalistas, the ConCon voted that the language of deliberations would be English. And to illustrate further their seeming resentment of the actuations of the Tagalog partisans, a majority of the delegates voted in favor of a resolution which did not recognize the existence of a national language.

Sibayan further writes:

> ... the deliberations and actions of the members of the ConCon on language ... show that it is difficult even for men who are educated and are supposed to be the leaders of the country to shed their regional attachments and language and get into the mainstream of Philippine life through a national language based on one of the Philippine languages. One inescapble conclusion is that Pilipino is not yet a mark of identity with the majority of the Filipinos.

When the smoke of battle had vanished, as it were, and tempers and emotions had subsided, the following language provisions were finally incorporated in the 1973 Constitution (Article XV, Section 3):

> Par. 1. This Constitution shall be officially promulgated in English and in Pilipino, and translated into each dialect spoken by over fifty thousand people, and into Spanish and Arabic. In case of conflict, the English text shall prevail.
>
> Par. 2. The National Assembly shall take steps towards the development and formal adoption of a common national language to be known as Filipino.
>
> Par. 3. Until otherwise provided by law, English and Pilipino shall be the official languages.11

Only those conversant with the language problems in the Philippines could fathom the rationale or wisdom behind each provision. Note that the new Constitution no longer carries the phrase 'based on one of the existing native languages' -- the phrase in the 1935 Constitution that triggered animosity immediately after Tagalog was chosen as basis.

The carefully worded language provision appears to have appeased the non-Tagalogs who took a partisan stand on the language problem. Ethnic loyalty among the Filipinos is so strong that they react negatively to any mention of favoring one language, e.g. Tagalog. Moreover, the eventual changing of Pilipino to Filipino may be interpreted to mean that a puristic national language as reflected in the 20-letter Abakada should be discouraged, and that the national language to be developed and formally adopted would have to be truly representative of the various linguistic groups of the country today; it would be a language which is multi-based and, therefore, less provocative of regional jealousies and animosities (Constantino in Yabes 1973:134).

Perhaps the above-cited language provisions can be better understood through the following statements made by no less than the President of the Philippines in his paper read during the Second Conference on Asian Languages held in Manila on December 16, 1974:

> The Philippine Constitution of 1935 committed the nation in favor of a national language based on one of the native languages. This basis, of course, had to be Tagalog - the language of the primate city. Unfortunately, the absolute reign of the purists and the orthodox priests of this language further curtailed the development and acceptability of the national language. The new Constitution re-asserts the country's commitment to the adoption of a national language, but on the basis of a much more liberalized, more flexible and probably more representative language.

2.2.5 Resumé of Issues. There appear to be two contradicting opinions as to which sources should be given priority in enriching the vocabulary of Pilipino: indigenous or foreign languages. One group believes that the indigenous sources -- Tagalog and the other Philippine vernaculars -- should first be exhausted before attempting to adopt foreign words. 'Extremists' in this group even opt for a massive coining of words and a reviving of 'dead' Tagalog words, such as to signify that they put the foreign terms last in their preference list. This group claims that the Tagalog-based Pilipino is inherently rich in roots and affixes. To the advocates, it is only a matter of extensively availing of such riches in order for the users to be able to produce, derive, or coin the needed terms.

The other group, on the other hand, espouses the opposite view: that words may be adopted irrespective of whatever sources they come from, whether they are borrowed or not, as long as the words will fill the need for effective communication. And because the influence of English on Pilipino is so strong, this group appears to be favoring words borrowed from English. 'Extremists' in this group support a 'Filipino' language that is apparently very generous with the use of English terms, notwithstanding the availability of indigenous words that are synonymous with the foreign terms they seek to use.

The real issue, therefore, regarding the development of a lexicon for Pilipino is that one group gives much concern for the preservation of the 'authenticity' of the language, whereas the other group subscribes to 'dynamism' in language.

It would seem on close analysis, that all the other controversies on language, such as 'antipurism' versus 'purism', the expanded 31-letter alphabet as against the 'atavistic' 20-letter Abakada, could be interpreted as mere pseudo-issues. People accused of trying to propagate a puristic national language through the 20-letter Abakada, actually, are only motivated by the desire to preserve the 'authenticity' of the national language. On the other hand, the proponents of 'antipurism' and of the expanded Abakada are merely opting for a language that in their opinion is functional, virile, and dynamic.

NOTES

[1]For a more comprehensive account of the historical development of Pilipino, see Frei 1959, Sibayan (in Fishman 1974) and Bernabe 1978.

[2]In this study, no attempt is made to trace the etymology of words to their original forms. Words which are ordinarily recognizable as not having foreign elements from the influencing languages of early times, such as Sanskrit, Chinese, Malay, etc. are considered indigenous.

[3]Frake, incidentally, theorizes that Philippine Creole Spanish (popularly known as Chavacano) is 'not simply a Philippine language with unusually heavy Spanish lexical influence, nor is it Spanish with a large number of Philippine loan words'. Rather, he claims it is a distinct language that is easily distinguishable from both its Romance and its Austronesian progenitors. It 'shares enough in common with the classic creoles of the Carribean', implying that it could possibly have been brought to the Philippines by some settlers perhaps from the island of Ternate of the Spice Islands. (See also Riego de Dios 1976 which essentially says the same thing.)

[4]Cecilio Lopez was the only Tagalog (representing that language) on the Board. The Chairman was Jaime C. de Veyra, a Visayan (representing Samar-Leyte). Two other members were also Visayans: Filemon Sotto (representing Cebuano) and Felix S. Rodriguez (representing Hiligaynon). The remaining three were Santiago Fonacier, representing Ilocano; Casimiro F. Perfecto, representing Bicol; and Jadji Butu, a Muslim, representing the minority dialects of the Philippines.

[5]The incident was narrated by Cecilio Lopez, INL Executive Secretary at the time, during the presentation of a Festschrift to Msgr. Santiago Fonacier, Ilocano representative to the INL Board, at the Philippine Normal College, May 21, 1977, sponsored by the Linguistic Society of the Philippines; see also Rodrigo in Philippines Free Press 1963:LVI:2:3.

[6]Seven years earlier, Sibayan (1967:134) said essentially the same thing about the Balarila: 'Without in any way discrediting the contributions of Lope K. Santos and the other members of the INL, which were certainly valuable and needed, it may be said that these early works should have remained only tentative studies. However, they were soon almost 'canonized' and accepted as dogma, which has made it almost impossible to modify them even when more sophisticated studies have since become available'.

[7]Senator Rodrigo's article appeared in a special issue on language of the Philippines Free Press, January 12, 1963, the cover page of which depicted the language problem in the Philippines, with the headlines THE PHILIPPINE LANGUAGE CONFUSION and A BABEL OF TONGUES. On page 1 was an editorial by T. M. Locsin with a cartoon titled CONFUSION OF LANGUAGES, showing the Filipinos speaking different languages. The other major articles on language were PILIPINO FOR FILIPINOS by Edward R. Kiunisala, subtitled 'Teaching of Pilipino, English, Spanish and Local Dialects Creates Utter Linguistic Confusion', and former Senator Rodrigo's LET'S START ALL OVER AGAIN, subtitled 'Get Rid of the Purists — the Main Obstacles to the Learning of Pilipino'.

[8]The conference, which was jointly sponsored by the Linguistic Society of the Philippines, Surian ng Wikang Pambansa, Philippine Social Science Council, and Fund Assistance for Private Education, was held at De La Salle University, Manila, October 20-22, 1977. Leading Filipino language scholars with differing linguistic persuasions were invited to speak, among them being Dr. Bonifacio P. Sibayan of the Philippine Normal College, Dr. Ernesto Constantino and Dr. Leopoldo Y. Yabes of the University of the Philippines, Engr. Gonsalo del Rosario of the Araneta Foundation University, Atty. Geruncio Lacuesta, editor of the defunct KATAS magazine, etc.

[9]This monthly journal was approved by the Bureau of Private Schools on April 24, 1961 as general reading for teachers and students in elementary, secondary, collegiate and university levels of all private schools in the Philippines; and by the Bureau of Public Schools on August 11, 1961 as general reading in public intermediate and secondary schools. On October 27, 1964, however, the journal was banned from the public schools by Acting Director Rufino Alejandro of the Bureau of Public Schools 'due to its departure from the linguistic standard of the Institute of National Language as determined by Director Jose Villa Panganiban' (Katas: IX-1, August 21, 1971).

[10]One would find it very difficult, however, to reconcile this claim of Aspillera (that as early as 1939 the INL Board had decided to adopt the letters c, ch, f, j, ll, ñ, q, rr, v, x, z) with her father's puristic Balarila which was written that same year. Furthermore, such adoption should have been reiterated in Department of Education and Culture Order No.194, s.1976 - Mga Tuntunin ng Ortograpiyang Pilipino - so as not to make the INL appear inconsistent in its edicts.

[11]Spanish was eliminated as an official language in the 1973 Constitution but was restored as an official language through Presidential Decree No.155, promulgated on March 15, 1973.

CHAPTER 3

RELATED LITERATURE AND STUDIES

3.0 Introduction

The first guidelines on lexical elaboration in the Philippines are embodied in Commonwealth Act No.184, Section 8, Paragraph 2, which reads as follows:

> To enrich said vocabulary of the national language, the Institute shall:
>
> 1. Use as a source primarily the Philippine tongues (Cebuano, Ilocano, Hiligaynon, Bicolano, Pampango, Waray, Pangasinan, etc.),
>
> 2. and then if necessary, the Spanish and English, adopting from these languages such terms as are already familiar to Philippine tongues, and
>
> 3. whenever it shall be indispensable to form new words, these shall be taken principally from the classical languages, such as Greek and Latin, especially for scientific, literary and technical uses.
>
> Foreign words thus newly formed shall be assimilated to the Philippine phonetics and orthography; Provided, however, that the current spelling of family names of foreign origin and form used by Filipinos shall be preserved in order not to render the identification of persons difficult.

The above vocabulary enrichment procedure was formulated for the guidance of the newly constituted National Language Institute. Note, however, that the first step was not faithfully followed by the Institute as manifested in its first output — the Balarila ng Wikang Pambansa. Except for cognates which of course were not the ones meant in the Act, not even a single word taken from other indigenous Philippine languages can be found in the book. It is not fanciful to speculate that 'purism' might not have been an issue had the Institute included, even arbitrarily, some words taken especially from the principal native tongues.

3.1 Some Practices in the Elaboration of a Pilipino Lexicon

Aside from the Institute of National Language which periodically publishes a compilation of terminologies for various subjects, like agriculture, economics, mathematics, education, etc., the following entities have also contributed to the development of a Pilipino lexicon:

3.1.1 Lupon sa Agham of the UNESCO Philippines. The first massive attempt to develop a Pilipino scientific lexicon was the one undertaken by the Lupon sa Agham (henceforth Lupon), a committee created by the Linangan ng Wikang Pilipino (Academy of the Pilipino Language) which was itself established in 1964 by the UNESCO National Commission of the Philippines. The Lupon prepared a book titled Maugnaying Talasalitaang Pang-agham: Ingles - Pilipino (henceforth Maugnayin), containing an 'integrating vocabulary of basic scientific and technical words and expressions in the five fields of the mathematical sciences, physics, chemistry, biology and the social sciences adequate for modern living but consistent with the morphological stock of Tagalog' (Del Rosario 1968:8-9). The book, which created quite a stir among language scholars, was claimed to have been prepared cooperatively by 60 volunteer scientists, professors and engineers from universities, government offices and professional and scientific societies.

Most of the words and expressions contained in the book are generally contentives arbitrarily divided into two general classes: names and terms. Names, as explained by Del Rosario, are those words and expressions denoting materials, equipment, instruments, stars, planets, countries, animals, plants, and other concrete things that can be felt and seen. Terms, on the other hand, are those words and expressions consisting of more than one morpheme each, whose meanings are deducible from their structures, and are constant from one occurrence to another.

In translating the scientific and technical names, the Lupon used the following sources in their numerical order of priority: (1) current Tagalog words, e.g. Kambing for Capricornus; (2) old Tagalog words, e.g. tinggaputi for tin; (3) words from the other principal dialects in the Philippines, e.g. duta, Visayan for earth as a planet; (4) Spanish and English words, e.g. sentigrado for centigrade, asid for acid; (5) words from the other world languages, which are very rarely used if ever.

In translating the scientific and technical terms, the Lupon rigorously applied the theory that terms should be derived from rootwords already existing and current in the Tagalog language, by using the rules of affixation, combination and reduplication recognized by the balarila or grammar of Pilipino.

Terms, according to Del Rosario, express complex scientific concepts and relationships, and such abstractions are best conveyed by words having a consistent and rational morphology. This theory, according to him, makes the terms self-explanatory even to children in the grade schools who may be meeting them for the first time. For instance, the term alkali which, Del Rosario says, the Lupon borrowed in the shortened form alka, can prove very prolific since all the other derivatives of this word can be easily formed from the root alka and the affixes of Pilipino. Alkalinity, for example, becomes kaalkahan, formed with the help of the discontinuous affix ka-...-han which denotes the abstraction of the meaning carried by the rootword.

On the other hand, if the English derivation alkalinity were to be borrowed in its original form or in the assimilated form alkaliniti, Del Rosario says we would either have to treat it as a single unwieldy morpheme or have in our hands a stray morpheme, -ity or -iti, which has no meaning in Pilipino and, therefore, would merely make the affixal system of Pilipino chaotic and confusing.

To this researcher, the strengths of Maugnayin may be summarized as follows:

1. Espousal of the theory of 'internal consistency' of Pilipino puts restraints on widespread borrowing from English which, if unchecked, could result in the loss of authenticity of Pilipino, a phenomenon that signals the incipience of creolization;

2. Euphemism and indirection are dictated upon us by our culture, especially in respect to those words that have something to do with sex. We have, for example, terms for sex organs and sexual acts but they are taboo and, therefore, should not be used in sex or population education so as not to offend society. Most of the derivations of the Lupon in the area of sex prove acceptable. Punlay (punla ng buhay), for example, meaning sperm or semen, is now a popular term in the literature of family planning. (Note that punl and ay are not even morphemes in Pilipino.) Tamod, the taboo term for it, is never used.

3. The Lupon's strategy of borrowing from the indigenous Philippine languages is psychologically sound. Although the terms arbitrarily borrowed have uncertain chances of being accepted, the Lupon's borrowing may serve to appease the non-Tagalogs who claim that Pilipino is Tagalog, in truth and in fact.

The weaknesses of the Maugnayin, on the other hand, may be summarized as follows:

1. The meaning of most of the derived scientific terms in the book are not easily retrievable (in spite of the claim of the authors to the contrary) inasmuch as the remaining portions of the combined words are not recurring partials. This negates their contention that they coin words in order to make the formation of science concepts easy for the learner. The English -logy is a recurring partial and, therefore a morpheme. On the other hand, consider for instance, ag- (agham), balni- (balani), dagi- (dagitab), ul- (ulnong), etc. These are meaningless to Filipinos because they are not morphemes in any of the indigenous Philippine languages. The burden of memorizing the meanings assigned to them will be far more difficult than the concept formation itself.

2. Many derived words are rather kilometric, odd, meaningless, and tongue-twisting. Example is pahaylikhayaning mabilos na suga (biophysically active light), from Tagalog pabuhay + likas + hanayan + -ing + Visayan mabilos na suga.

3. There is arbitrary and deliberate borrowing from the indigenous Philippine languages despite the existence of terms in common use and thereby more acceptable. Examples are as follows:

paslip (Ilocano) for steel instead of asero;

dagsin (Ilocano) for gravity instead of bigat;

antangan (Maranao) for design instead of disenyo;

kusog (Hiligaynon) for energy instead of enerhiya or lakas;

patigayon (Hiligaynon) for strategy instead of istratehiya.

4. Words are still coined or derived in spite of the fact that there are already existing terms commonly used. Examples are as follows:

binhisipan for seminar instead of seminar;

hatidwad for telegram instead of telegrama;

hatinig for telephone instead of telepono;

agsikap for engineer instead of inhinyero.

These kind of coinages are now being associated with salumpuwit for chair and salipawpaw for airplane by the critics of the language.

5. The order of preferences in the expansion of Pilipino scientific lexicon (1. current Tagalog words; 2. old Tagalog words; 3. principal Philippine dialects; 4. Spanish and English words; 5. other world languages) is impractical. Preference No.1 is all right. Preferences Nos.2 and 3, however, should not be given priority over No.4. In fact, subsequent studies which will also be discussed in this chapter show a different order of preferences.

The Maugnayin was submitted to the Institute of National Language for approval in accordance with the provisions of law. Following is what INL Director Pineda said of the book (Pineda 1970:143-4):

> It can't be denied that this is the first solid attempt of a professional group to contribute to the development of the National Language. The Lupon has devoted much of its time to the coining of words to match foreign equivalents. Meanwhile there is a raging debate about the so-called puristic tendencies of the Lupon. But coining, as a process of language development, should not be dismissed as totally irrelevant. [illegible] world languages have not escaped this phenomenon in their [illegible]time. However, in the instant Maugnayin case the system [illegible]s to have gone too far. Even native forms with established [illegible]anings have been replaced with strange lexical fabrications. Words taken from other Philippine languages have been assigned significations beyond the pale of their language origins.

The INL did not stamp its approval on the book. Director Pineda said:

> The Institute of National Language reserves the right to approve the book as to linguistic matters involved therein until after a thorough rediscussion and reevaluation as herein suggested. Let it be understood, however, that the Lupon sa Agham may continue to circulate the book without official sanction. In this way, the newly coined scientific and technical terms will be given a fair chance to get themselves 'accepted in the competition of the market'. Suffice it to say that while the Institute appreciates in its totality the sincere endeavors of the Lupon sa Agham, the former asserts that the Lupon's language model for the most part is at war with the language model of the Institute of National Language.

3.1.2 LSC-PNC Survey on Science Terminology

In 1972, the Language Study Center of the Philippine Normal College undertook a survey on translation preferences of educators in connection with a project of translating into Pilipino certain science materials (teachers' and pupils' guides for the elementary grades) being produced by the Science Education Center of the University of the Philippines (Otanes, Santiago, and Baylon 1974:31-43).

The following types of respondents were used in the survey: (1) public and private school teachers from four types of areas; namely, urban Tagalog (Manila), urban non-Tagalog (Baguio City), rural Tagalog (Paete, Laguna), and rural non-Tagalog (Irosin, Sorsogon); (2) school administrators from the same four types of areas; (3) college instructors/professors in Pilipino, science, and education from public and private schools; and (4) senior students pursuing the B.S.E. and B.S.E.Ed curricula in public and private teacher-training institutions.

The survey aimed to get the respondents' most preferred choices from among the following alternative ways to express scientific and technical concepts in Pilipino: (1) English term with no respelling (E-1), e.g. liquid; (2) respelled English term (E-2), e.g. likwid; (3) Spanish term with no respelling (S-1), e.g. liquido; (4) respelled Spanish term (S-2), e.g. likido; and (5) indigenous term (I), i.e. use of current Tagalog term, e.g. katangian for characteristic; use of archaic Tagalog words, e.g., balisunsong for funnel; borrowing from one of the native languages of the Philippines, e.g. kusog (Visayan) for energy; coining, e.g., miksipat (mikmik + sipat) for telescope; and sometimes combining either a Tagalog root and an affix from one of the vernaculars, e.g., aghamanon (agham + -(a)non [Visayan suffix denoting expert]). The fifth approach (I) is essentially that of the Lupon sa Agham of the NSDB; the terms used in the survey were taken from the Maugnayin book developed by that body.

Two survey instruments were developed: (1) a questionnaire containing twenty English sentences, each containing a science term, and (2) a translation of an English scientific passage into five different versions of Pilipino. In the first instrument, every English sentence was followed by a translation in Pilipino, with the space for the equivalent of the science term in the sentence left blank. Below the Pilipino translation were options representing the five alternatives and also, in some cases, well known Tagalog words that matched the English terms.

In the second instrument, the respondents were to choose from the five versions which represented the possible alternative for translating from English to Pilipino and which were coded E-1, E-2, S-1, S-2, and I. Innocuous labels such as Salin C, Salin X, Salin F, etc., were used instead of more descriptive labels in order not to prejudice respondents for or against any version from factors other than the form of the translation itself.

The results of the survey revealed the following: (1) none of the most preferred choices was spelled in any letter outside the Abakada; (2) Spanish was preferred to English as a source of borrowing; (3) there was a relatively large number of indigenous terms chosen, but all of these terms were also part of current Pilipino vocabulary; and (4) in each of three coined terms in alternative 'I', a stem could be isolated which was also part of current Pilipino vocabulary, e.g., haba, sukat, sulok, in parihaba, parisukat, and tatsulok, respectively.

Moreover, it was inferred from the responses on the isolated sentences (first instrument) that (1) borrowing from either English or Spanish with no respelling was not acceptable except for words which were regularly spelled, like solido or solid; (2) borrowing from English, even with (3) respelling, was not a highly preferred alternative; and using indigenous terms which were not part of the current Pilipino vocabulary was likewise an unpopular alternative.

The findings with respect to the continuous passage (second instrument) confirmed those in the first instrument, i.e., the version which received the greatest acceptance in terms of number of respondents was the one that (1) only used the 20-letter Abakada for common words; (2) used respelled Spanish more than English as a source of borrowing; and (3) did not contain examples of coined words, words from other Philippine languages, or old Tagalog words which were not in current usage in Pilipino.

It was further revealed that the variety of Pilipino that the schools and the Institute of National Language had been teaching received widespread acceptance as the variety to be used in writing.

Based on the results of the survey, the following guidelines were set for the translation project:

1. Continue to use the 20 letters of the Abakada for common terms;

2. Use letters from the English and Spanish alphabets not included in the Abakada only in proper nouns and in technical terms only when number 1 is inapplicable;

3. As much as possible, use terms from the current Pilipino vocabulary;

4. Borrow from Spanish in preference to English, except when the English term (respelled or as is) is already in common use in Pilipino;

5. Word-coining is not to be resorted to except when absolutely necessary, i.e., when alternatives 1-4 cannot for some reason be applied. Where coining is used, (a) one of the constituents of the term must be a root word in common use in Pilipino; (b) the other constituents, whether affixes or parts of words, must give a clue to the meaning of the term; and

6. Borrowing unfamiliar words from any language whether indigenous or foreign is to be employed only where alternatives 1-5 cannot for some reason be applied.

The above study focused only on how the science materials for the elementary grades could be translated into Pilipino in a manner that would be acceptable to the users. Science concepts at this level are as yet comparatively simple so that most of them can still be handled adequately by Pilipino without posing serious problems of borrowing and coining. Hence, the results of the survey showed the popularity of indigenous terms over those from Spanish and English.

However, a replication of the survey at the secondary or tertiary levels might yield different results, especially if more technical terms to be included will be drawn from branches of science like medicine, biology, chemistry, physics, and mathematics which also use technical terms.

3.1.3 LSC/PNC-EDPITAF Criteria on Word Selection

The EDPITAF (Educational Development Projects Implementing Task Force) was created by Presidential Decree No.6-A as part of the Ministry of Education and Culture. Its main objective is to produce all essential textbooks both in Pilipino and in English with the goal of providing at least one book for every two elementary or secondary pupils. With a sizable sum borrowed from the World Bank, the EDPITAF is now in the process of preparing the needed materials, e.g. textbooks and teachers' manuals. The nature of materials to be prepared was classified. Those pertaining to Communication Arts were given to the Language Study Center of the Philippine Normal College which had been designated as National Curriculum Development Center for Communication Arts.

Right from the start, the staff of the LSC/PNC-EDPITAF Textbook Development Project realized that the following would be the likeliest problems in the writing of instructional materials in Pilipino: lack of vocabulary, borrowing, and spelling. Commenting on the problem, Dr. Bonifacio P. Sibayan, co-director of the project, said (Sibayan 1977:23):

> We found out early that the spelling of Pilipino was not as easy as it was first thought. A conference was called between the Director of the INL and the co-directors of the Center. A number of points in the spelling mainly of borrowed words were clarified and agreed upon. The alphabet finally agreed upon was the 26-letter of English alphabet plus the Spanish character ñ.

Sibayan was referring to the borrowed words from English, the same problem encountered by the LSC-PNC in 1971 in translating into Pilipino the science materials written in English by the Science Education Center of the University of the Philippines. (The translation project was discontinued after the announcement of the 1974 bilingual policy that science and mathematics were to be taught in English.)

Given below are the criteria followed by the LSC/PNC-EDPITAF in the selection of words for Pilipino (Sibayan 1977):

1. Words that can be easily understood by the children when written in their original form are not changed, like:

silver dust	water lily	ferris wheel
water color	nylon	party-line
chewing gum	ash tray	fountain
seesaw	soft drinks	open house
zebra	puka shells	softball

2. Some loanwords are spelled to conform to the Pilipino system of writing. This is usually done in the texts for the lower grades so that the pupils will not be confused when they start to learn to read. For example, familiar terms like Krismas tri, krismas kard, karoling, sirko (for circus), moske (for mosque), rises (for recess), bleyd (for blade), isport (for sport), istro (for straw), traysikel (for tricycle), plastik (for plastic).

   In Beginning Reading letters in English like ch, g, ck, and clusters like que, str, cyc, sp, and phonemic sounds which are different from the forms like c for s and k, a pronounced as ey as in bleyd are not taught, so that if the spelling of these words is not changed, pupils will find them difficult to read.

   In the higher grades where students are already familiar with such words, the original spelling can also be used.

3. Words not native but which have been used for quite some time are preferred if the meaning of such words appears to be more precise than that of the translation. Spelling of these words is made to conform to the Pilipino system: pitser instead of tagahagis ng bola, gwantes instead of gomang pambalot or isinusuot sa kamay, bakante (more general meaning than walang nakaupo, walang nakatira, etc.), restawran (kainan), eksibit (nakatanghal), bakasyon (araw ng pahinga).

4. Loanwords (from Spanish) that are more generally used than Tagalog words and which are also used in other regions are preferred. Examples are: aginaldo, banyo, boses, kotse.

5. Foreign words which when translated will have more than one meaning or will require more words are preferred but modified in spelling like:

	Preferred
project (plano, ginagawa, balak, etc.)	proyekto
complete (tapos, buong pagkain)	kumpleto
uniform (dress, pareho, magkatulad)	uniporme
manager (puno, boss, namamahala, etc.)	manedyer
policeman (alagad ng batas)	pulis
leader (puno, nangunguna)	lider

6. In Grade I most of the verbs used are formed by the simple affixes mag-, -um-, -an, and -in. The adjectives are those formed with the prefix ma- like mahusay, mabait, malinis. Comparative degree uses the mas form and the superlative prefix napaka- as in mas maganda, napakaganda. In some other Philippine languages the same forms are used.

   The types of verbal affixes, nominal affixes and adjectival affixes increase in number as the grade level increases.

7. When there is more than one word that can be used, the more familiar or common ones are used in the lower grades. The other forms are introduced in the higher grades but are unlocked or taught in the vocabulary study.

Example of words used in the lower grades:

magdrowing instead of gumuhit
gawain for tungkulin or hanapbuhay
ipinanganak for isinilang
sulatan ng pangalan for lagdaan or permahan
dekorasyon for palamuti
tingnan for obserbahan

8. Names of offices, laws, educational terms like Dare Foundation, Price Stabilization Law, Outreach Program Centers, Continuous Progression Scheme which can be more clearly and easily understood in their original form are not translated nor modified in spelling.

In general the words selected are determined (aside from those given) by the subject matter (about the family, the school, the government, etc.), the type of literary form (prose, poem, folktale, games, etc.), the vocabulary and structures specified in the language objectives, and the decisions of editors, consultants and feedback from the tryout teachers and coordinators.

As regards words from other Philippine languages that are not used in Tagalog areas like kanyaw (a ceremony performed by the Igorots as a ritual for the dead) these are defined along with the other terms before the story is taken up. Other words introduced are: gangsa (gong), ay-yeng (song), chisig (a plate of food for the spirit), fayas (wine from sugar cane), and ta-pey (wine from rice). Other words (First Year text) introduced in connection with baptism among the Muslims are: pagislam (covers 3 stages of baptizing a Muslim), imam (a woman who performs the first stage in the baptism), panday (this is the term for midwife or the woman who assists in the delivery of the child).

It is evident that the above criteria are generally in accord with the guidelines established by Commonwealth Act No.184 (supra, page 48), except that the use of Philippine tongues as primary sources for words not available in Tagalog has not been strictly observed. The LSC/PNC-EDPITAF staff must have realized that it is impractical to give priority to Philippine tongues as sources in word borrowing. In other words, they have not concerned themselves with the ordering of sources in word borrowing but rather with the readability of words used in a textbook whatever sources they come from. One thing, however, is clearly evident in the criteria: the instructional materials being developed by the LSC/PNC-EDPITAF are not puristic, as can be seen from the samples cited.

Furthermore, the criteria must have been the result of the accumulated experience of the members of the staff in the field testing or tryout of prototype materials that they had developed.

Moreover, step number three in Commonwealth Act 184 has not been availed of for the obvious reason that the nature of the materials being developed is nontechnical.

3.1.4 Some INL Publications on Pilipino Lexical Development

Following are two of the latest publications of the Institute of National Language which relate to the present study:

3.1.4.1 Mga Katawagan sa Edukasyong Bilinggwal (Surian ng Wikang Pambansa 1977). The Institute of National Language, as the highest body officially entrusted by the National Government with the development and propagation of Pilipino, published in 1975 an experimental edition of a book containing terminologies needed in the implementation of the bilingual education policy. Revised and expanded twice during the years 1976 and 1977, the latest edition of the book contains terminologies in the following areas: social studies, economics, geography, home economics, athletics, social science, work education, character education, health education, physical education, and pedagogical terms.

In the preface, the INL states that it published the book in order to help in the effective implementation of the bilingual policy of the Department (now Ministry) of Education and Culture and also to answer the needs of teachers, school administrators, language researchers and students of language. It states further that the primary aim in the publication of the book was to achieve uniformity in the use of the terminologies in each subject area.

A scrutiny of the Pilipino translations of the English terminologies in the different areas reveals that (1) the 11 letters added to the Pilipino orthography were very rarely used, being only found in highly technical terms like status quo, laissez faire; (2) indigenous terms were given preference, e.g., pagsasaka for agriculture instead of agrikultura, panagot for surety instead of garantiya or piyansa; (3) the Spanish equivalents spelled according to the Abakada, if necessary, were used where there were no indigenous terms, e.g., suplete for blow torch, silinyador for accelerator (4) the English terms were borrowed and assimilated according to the phonetic and spelling system of Pilipino, e.g., episyensi for efficiency, impitsment for impeachment; (5) borrowing from other Philippine indigenous languages was rarely availed of, if ever.

The book, in general, disproves the charge of some apparently misinformed critics that the INL is puristic in policy. This researcher, however, entertains the possibility that not a few of the recommended terminologies would be frowned upon by the users. Nowhere in the book can one find the guidelines followed by the INL in its preferences. The equivalent given, for example, for foul ball is bolang lumalabas sa dayamon sa pagpalo. One cannot but wonder how this undeniably long equivalent (in fact, definition) will be spoken by an umpire in a ball game.

3.1.4.2 Patnubay sa Korespondesiya Opisyal (Surian ng Wikang Pambansa 1977). Another book published by the Institute of National Language is a guide on official correspondence for those who wish to write their letters in the national language. In his preface, Secretary (now Minister) of Foreign Affairs Carlos P. Romulo says of the book in part:

> Ang paglulunsad sa Patnubay sa Korespondensiya Opisyal ay isang makabuluhang hakbang sa pagsasaalang-alang sa ating Wikang Pambansa — ang Pilipino. Ang proyektong ito ay naaakma sa panahon ngayon na marubdub ang pagnanasa natin na magkaroon ng sapat na sanggunian sa pasulat na pakikipagtalastasan sa ating sariling wika. Ito'y napakalaking tulong sa mga pinuno at kawani ng lahat ng kagawaran, kawanihan, tanggapan o ahensiya ng pamahalaan, at ng mga korporasyong ari o kontrolado ng pamahalaan, lalung-lalo na sa kanilang pagsulat ng korespondensiya sa Pilipino.

Twenty-four samples of different kinds of letters are presented in the book which is intended to serve as a guide for officials and employees in the various ministries, bureaus, offices and agencies of the government, and in government-owned or controlled corporations as well.

The other significant portions of the book are the following: (1) Terms and Expressions Commonly Used in Official Correspondence, (2) Government Forms, (3) Names of Government Offices, (4) Public Administration and Parliamentary Terms and Usages, and (5) Rules for Barangay Meetings.

The Korespondensiya Opisyal is one of the important accomplishments of the INL that is likely to contribute to the development and propagation of Pilipino. Like the previous book, Mga Katawagan, however, this manual does not mention the guidelines followed by the INL. These could be helpful to a user especially when the terms he wants to translate are not found in the book.

Furthermore, while very few printing errors crept in (*esrkibano, p.113; *kinikilangan, p.117), some inconsistencies in spelling are discernible. There is no doubt that the INL adhered strictly to the one-to-one correspondence between the phoneme and the symbol — as pronounced, so spelled — which is an asset of the Pilipino spelling system that should be preserved. Consider, however, the following spellings: aytemais, (itemize, p.124) as against obertaym (overtime, p.129); autoridad (authority, p.110) as against awtpost (outpost, p.129); to cite a few.

Moreover, declusterization, a rule followed when the 1939 Balarila was written because the Tagalogs in those days could hardly pronounce clusters, appears to have some traces in the book still. Consider korespondensiya in the title itself; it can easily be written as korespondensya. Consider further other entries like aksiyon, aplikasiyon, etc.

Perhaps the following guidelines published in one of the monographs of the INL could be of some help to a user had they been incorporated into the two above-mentioned books (Pineda 1977:52):

> Ang Surian ng Wikang Pambansa ay may mga pamamaraang (P) sinusunod, viz.:
>
> P_1 -- tanggapin ang mga katawagang pangmatematika, pang-agham at panteknolohiya sa Ingles at batakin ang mga ito sa himig mala-Kastila at anyong Pilipino.
>
> P_2 -- isalin nang buuan sa Pilipino ang mga katawagang pangmatematika, pang-agham, at panteknolohiya sa Ingles.
>
> P_3 -- isalin nang bahaginan ang mga pariralang katawagang pangmatematika, pang-agham, at panteknolohiya sa Ingles.
>
> P_4 -- tanggapin ang mga katawagang pangmatematika, pang-agham at panteknolohiya sa orihinal na tunog at anyo sa Ingles.
>
> May isang pangkalahatang simulaing kailangang igalang sa mga pamamaraang inilahad. Ito: Ipaloob sa kayariang Pilipino ang mga katawagang pangmatematika, pang-agham at panteknolohiya sa Ingles.

It is not clear in the article whether P_1, P_2, P_3, and P_4 should be necessarily applied in that same order in usage. This researcher, however, assumes that it is so, considering that borrowing via Spanish with the term respelled to conform to the Abakada is labelled as P_1 and borrowing the English term without any change in spelling is labelled as P_4, a procedure which is very common these days, as the results of the studies that are to be discussed shortly will show.

Note, however, that the use of the vernaculars and also of the classical languages (as prescribed in C. A. 184) as sources of terms is not mentioned in the INL guidelines.

Moreover, the INL guidelines are intended for mathematics, science and technology. Nevertheless, they can be modified to suit other areas, technical or nontechnical, in the development of a Pilipino lexicon.

3.1.5 Glossary of Medical Terms (Recio 1975)

In medicine, a pocketbook (97 pages) with the above title was prepared in 1975 by a group of resident physicians in the Department of Surgery, Philippine General Hospital, under the leadership of Dr. Porfirio M. Recio, who was the department chairman. The glossary is a list of 277 terms specifically referring to parts of the body, senses, relations, symptoms and signs (urinary disturbances, bowel disturbances, gastrointestinal tract, respiratory tract, nervous system, gynecological diseases), foods, numbers, color, time, and various common diseases.

For ease of reference, the listing is made in the following manner: On the left-hand side is the English term, and on the right-hand side, the Tagalog equivalent. Immediately below on the same page are listed the equivalent of the medical term in each of the following sixteen representative Philippine languages: Sugbuanon, Iloko, Pangasinan, Kapampangan, Bikol, Ilongo, Waray, Aklanon, Zambal, Ibanag, Ibatan, Apayao, Ibaloy, Ifugao, Kalinga, Kankana-ey, Gaddang, and Maranaw. Equivalent terms are also given in Chavacano, Malay, Indonesian, Chinese, Spanish, French, and German.

Actually, the book is designed to serve as a companion volume to Recio's earlier publication titled 'Questions You Have Wanted To Ask Your Patient (But Could Not Because He Spoke Another Dialect)'.

Dr. Recio, in his foreword, explains that the language barrier prevents effective communication between physician and patient; that the 'communication gap among our polyglot population must be bridged if there is to be rapport and understanding between the Filipino physician and his kababayan patient'.

No principles followed in the choice of the Tagalog equivalents were given. Nevertheless, it is noticeable that the terms used are common among Tagalogs. Some examples are as follows:

English	Tagalog
esophagus	lalaugan
clavicle	balagat
large intestine	isaw
pancreas	lapay
abortion	pagpapaagas

A simple survey, however, will likely reveal that the above Tagalog terms are no longer known among the younger Tagalog generations.

3.1.6 De La Salle University Survey on Population Terms (Ongoing)

At this time of writing, an ongoing study is being conducted by Bro. Andrew Gonzalez and Tomasita Jimenez of De La Salle University. With the use of various sectoral samples in the Greater Manila Area, the study aims to determine the terms used in population education which would be most acceptable to the community and therefore most likely to be given widespread dissemination.

The instrument being used in the survey is a translation into Pilipino of some passages in a pamphlet on population education printed by the National Media Production Center. The terms are first given in English, then are followed by other possible options taken from sources like publications of the Institute of National Language, the Population Commission, and the Maugnayin for the respondents to choose from.

Although the study is limited only to terms in population education, this researcher believes that it would contribute immensely to the elaboration of a Pilipino lexicon, considering that people engaged in information dissemination regarding population education find it very difficult to communicate with the masses because of the lack of acceptable terms in Pilipino. It is, of course, common knowledge that Pilipino is very rich in terms pertaining to sex. Some of them are exact equivalents of the English terms but they are taboo and therefore unacceptable to 'cultured' Philippine society. Consider titi for penis and puke for vulva. Philippine society prefers the use of euphemistic terms which do exist in Pilipino but are ambiguous and inexact. Consider kabahagi or ari which can only be specific if followed by ng babae or ng lalaki.

3.1.7 Scientific Dictionary: English-Pilipino (Sytangco 1977). The title page of the book bears the following in Pilipino: 'PROGRESIBONG Maunlaring BOKABULARYONG Talasalitaang PANG-AGHAM: Ing(g)les-Pilipino, Jose Reyes Sytangco, M.D., Pamantasang Santo Tomas. Inihanda sa ilalim ng pagtangkilik ng Lunduyan ng Pananaliksik (Research Center) ng U. S. T.'

The book can be said to be puristic in intent and in form. Consider the following paragraph, for example, as quoted from its prefatorial page:

> Kung magkakaroon ng panagisi ang bunga ng pagod ng mga nauna, iya'y hambo ng pangangailangan, gawa ng kagipitan. Hindi ang kaganyakan, imbot o panlilibawa, di ang pagtitilalay ang itinuturing nating pakay ng isa't isa, kundi ang paghihinang ng damdami't kalooban ng lahat, ang pinaka-tugatog ng layon sa natatayang kapakanan ng Wika at kagalingan ng Inang Bayan.

A line on the title page of the book states that it is an amendment ('susog') to the NSDB's 'Maugnaying Talasalitaan'. The following are some samples of the amendments made by Sytangco:

'Maugnayin'		Sytangco
agsikap	'engineer'	adlikhanon
aghimuan	'technology'	agsinaraan, agparaan
kublupon	'subcommittee'	kasalong lupon

dalubpuno	'dean'	dalubtagapagtanggap
mangangapnay	'chemist'	manlalaop
alitakdain	'arbitrary'	pautos-sumpong
liknayan	'physics'	histulaan, aglikasan
binhisipan	'seminar'	punlaran, punlaral

The author did not mention in his book any rules or procedures which he had followed in expanding the Pilipino scientific lexicon. It is most evident, however, that like the Maugnayin, the Talahuluganang Pang-agham of Sytangco is another attempt to exploit the richness in vocabulary of Tagalog and other indigenous languages.

True, in many cases, he gives the reasons for his dislike of the 'Maugnayin' terms as well as the reasons behind his preferences for certain terms. His suggested terms, however, are equally puristic, as can be seen from the samples above.

It would be premature to say that the book is another embodiment of the apparently futile attempt towards purism. As its author states, 'Ito'y isang akdang pandarating na mga salinlahi, kung kailan ang ating pambansang wika ay makakatugma ng ating kaisipan at lunggatiing nangasa-ubod ng ating kaluluwa.' (English translation: 'This is a piece of work intended for the future generations, when our national language is already in harmaony with our minds and aspirations which are in the seat of our souls.')

3.2 Some Theses on the Elaboration of Pilipino Lexicon

The process of modernization or intellectualization of any language, according to Fishman, Ferguson, and Das Gupta (1968:29), has two aspects: 1) the expansion of the lexicon of the language by the adoption of new words and expressions, and 2) the development of new styles and forms of discourse. The authors explain that lexical expansion is required in order to treat new topics.

The present need of Pilipino is principally with regard to the first aspect: expansion of its lexicon. In fact, concentration of efforts toward this aspect during the past several years has been very apparent, as discussed in Chapter 2 and in this Chapter. At present, the second aspect -- the development of new styles and forms of discourse — still has to gain greater impetus; perhaps efforts toward that end may be pursued vigorously later.

It should be pointed out, however, that most of the guidelines on lexical elaboration discussed in the preceding section, even including the ones embodied in C. A. 184, were not research-based. This confirms what Fishman (1974:23) said on lexical elaboration practices as part of language planning, as follows:

> Certainly the lion's share of popular awareness of language planning is in conjunction with lexical elaboration as conducted by language academies or other official and semi-official agencies ... Nevertheless, ... process oriented research and theoretically guided research, particularly as related to the differential success of planned neologisms among various target populations, is almost entirely lacking ... Above all, we lack usage studies which are sensitive to the basic sociolinguistic reality of contextual variation. Some members of some target populations doubtlessly adopt academy-produced and academy-sponsored neologisms and use them exclusively thereafter for particular referents: others reject all such creations with particular glee and steadfastness ... This, indeed, is an area of much needed empirical and theoretical attention because it is basic to any efforts to expand the appropriateness definitions that, consciously or not, underlie the usage readiness or opposition of speech-network members vis-a-vis 'academise' at the lexical level.

The following studies may be considered as incipient yet pioneering attempts that may lead subsequent language scholars towards conducting more sophisticated 'process oriented or theoretically guided research' on lexical elaboration:

3.2.1 Cervantes Study, PNC 1971. Some two years after the publication of Maugnayin, Cervantes conducted a study on the preferences of translators in rendering English science terminology for the elementary grades into four versions of Pilipino.

Two types of questionnaire, the Semantic Differential Scales and the Attitude Scales, were administered to three groups of respondents to assess their pattern of responses (or stereotypes as used by the researcher) and attitudes toward the four methods of Pilipino translations of science terminologies. The groups of respondents were composed of students, teachers, and other professionals. The four methods assessed by the respondents were Maugnayin (NSDB), e.g. sipnayan; Impluwensyang Kastila (Spanish Influence), e.g. matematika; Himig Ingles, Baybay Pilipino (English pronunciation but respelled to conform to the Abakada), e.g. matematiks; and Himig Ingles, Walang Pagbabago (English pronunciation, no respelling), e.g. mathematics.

The results of the study revealed that there were very few significant observations on the clarity of the respondents' stereotypes toward the four methods in the Semantic Differential Scales. However, in the Attitude Scales, the respondents showed significant differences in their attitudes toward the four methods. The teachers and other professionals greatly favored Impluwensyang Kastila. The students preferred Ingles, Walang Pagbabago but their preference did not show any significant difference over the other methods. With regard to Maugnayin, the students were more positive in their attitudes than the other groups. The Himig

Ingles, Baybay Pilipino was the second preference of all three groups, although there was no significant difference in their reactions.

Cervantes' study clearly shows a different order of preferences as compared to that followed by the Lupon in Maugnayin (supra, pp.50-1). The respondents in this study greatly favored the borrowing of English science terms via Spanish, labelled in the study as Impluwensyang Kastila.

This finding of Cervantes is understandable for two reasons: (1) the period of contact between Spanish and Tagalog (basis of Pilipino) was very long, extending to a little over four centuries, as compared to that between English and Tagalog which has not yet reached the century mark, and (2) the relative ease of borrowing from Spanish because of the compatibility of the orthographic systems of Spanish and Tagalog, since both are generally classified as being consistent.

Cervantes, however, did not formulate specific guidelines to be followed by translators of science materials.

3.2.2 Rivero-Labigan Study, PNC 1974. The Cervantes study in 1971 was followed in 1972 by the LSC-PNC study (supra, pp.56-61), a more comprehensive survey on translation preferences in terms of the geographic spread of respondents covered and the respondents used. Two years later, Rivero and Labigan conducted a follow-up of the LSC-PNC study.

A questionnaire involving 100 science terms was used in the survey, 20 of which were the same terms used in the LSC-PNC study. The format of the questionnaire was patterned after the first questionnaire used in the LSC-PNC study.

The survey population included 300 respondents from the province of Bulacan (representing the Tagalog group) and another 300 from the province of Negros Occidental (representing the non-Tagalog group). The respondents in each group were classified into five categories: school administrators, science teachers, Pilipino teachers, laymen, and elementary school pupils.

The results of the study did not show any significant difference from those of the LSC-PNC study. In effect, the Rivero-Labigan study confirmed the findings in the LSC-PNC study. No formal statistics were used, but it was very apparent that there was no significant difference between the preferences of the Tagalog samples and that of the non-Tagalogs.

The guidelines formulated by Rivero and Labigan on the translation of English science terms into Pilipino were essentially similar to those formulated in the LSC-PNC study.

3.2.3 Sumayo Study, De La Salle. The primary aim of the study was to appraise the representative translation preference of 300 college freshmen of the University of the East, Metro Manila, in an attempt to 'formulate a tentative criterion for translation of science and technical terms in English to Pilipino'. The second purpose was to 'devise a rating scale which, to some degree, may measure the adequacy of the Pilipino translation of English terms in science and technology'.

Specifically, the study attempted to answer the following questions:

1. What translation preferences are the most favored or the least favored by the college freshmen?

2. What similarities or dissimilarities do the translation preferences specified in the study have with those in the LSC-PNC study?

The following survey instruments were utilized in the study: (1) a questionnaire posing translations in six versions of Pilipino of an English paragraph (an adaptation of the original testing instrument used in the LSC-PNC study; (2) a questionnaire consisting of twenty isolated sentences, each with a set of translation alternatives for selection in science and mathematics; and (3) a questionnaire presenting all the translation alternatives used in the second questionnaire in four categorized columns. Below the columns were posed four questions for the respondents to answer regarding the comprehensibility, readability, familiarity, and facility in spelling of the alternatives.

Sumayo's study differed from the LSC-PNC study in the sense that a rating scale was employed to measure the adequacy of translations in Pilipino in terms of meaning, source language, and form.

The findings in the Sumayo study do not show any significant difference from those of the LSC-PNC and Rivero-Labigan studies.

CHAPTER 4

METHODOLOGY

4.0 Introduction

The present study is generally similar to the other studies discussed in Chapter 3 -- Cervantes, LSC-PNC, Rivero-Labigan, Sumayo, and De La Salle -- in the sense that it also attempts to determine how the sample respondents would react to the various possiblities in the elaboration or intellectualization of the lexicon of Pilipino.

This study, however, differs from the other studies in the following manner:

(1) It covers five science disciplines or fields — medicine, biology, chemistry, physics, and mathematics. The Cervantes, LSC-PNC, and Rivero-Labigan studies covered general science only; the Sumayo study, general science and mathematics; and the De La Salle study, population education.

(2) Its respondents are exclusively students and teachers at the tertiary level and practitioners in their own areas of specialization. The Cervantes study used pupils and teachers in the elementary grades and some professionals; the LSC-PNC study, mostly public and private elementary school teachers and administrators, and some college professors and students; the Rivero-Labigan study, almost exclusively public elementary school pupils, teachers, and administrators, with the exception of some laymen; the Sumayo study, freshman college students taken from one institution only, and the De La Salle study, various sectoral samples in the Metropolitan Manila area (the actual composition of which is not yet known to this researcher at this time of writing).

(3) It intends to formally compare the reactions of the students, professors, and practitioners across the five disciplines. Among the other studies, only the Cervantes study did the same.

(4) It also intends to formally compare the reactions of the different groups — medicine, biology, chemistry, physics, and mathematics respondents. This was not done in the other studies since all of them (with the exception of the Sumayo study which included some words in mathematics) concentrated only on one discipline.

(5) It also intends to formally compare the reactions of the Tagalog and non-Tagalog groups. In the other studies, only the Rivero-Labigan study did the same.

4.1 Population/Respondents

The target population of this study consisted of senior college students, college professors, and practitioners in five spheres of science: medicine, biology, chemistry, physics, and mathematics (henceforth MED, BIO, CHE, PHY, MAT, respectively). This population represents a large group scattered practically all over the Philippines.

Since it would have been prohibitively expensive to draw the sample respondents from the total target population, they were drawn merely from the portion of the intended total population accessible to this researcher; that is, most of the sample respondents were drawn from the accessible partial population within the Metropolitan Manila area. The sample respondents for students and professors were taken from leading tertiary institutions in this area. The non-Tagalog sample respondents were also principally drawn from the accessible population within the same area. They were non-native speakers of Tagalog who came from the different linguistic sectors of the country either as transients (as in the case of most of the students) or as migrants now permanently residing within the Metropolitan Manila area (as in the case of the professors and practitioners).

During the process of selecting the prospective respondents, this researcher made it a point to get a good spread of the vernaculars from the accessible non-Tagalog population.

At the same time, this researcher, through his graduate students, was also able to get a number of respondents from a few of the non-Tagalog areas, such as the province of Cagayan, Ifugao, and Romblon, and Cagayan de Oro City. The responses of these two kinds of non-Tagalog respondents were compared and the data revealed that there was no significant difference in their preferences (see Appendix J).

Strictly speaking, therefore, the findings in this study may be generalizable only in respect to the accessible population, although such findings may also be broadly generalized to be applicable to the target population.

The respondents in this study were classified as follows: 100 senior college students, 100 college professors, and 100 practitioners in the aforementioned five spheres of science, making a total of 300 respondents.

The decision to have an equal number of respondents among the three groups was arbitrarily arrived at on the basis of the following considerations: There were no available data with which this researcher could determine the exact proportion of one group to the other groups. The group of professors, of course, were few in number as compared to the combined groups of students and practitioners. They were nonetheless allotted the same number of respondents, considering the fact that as mentors of students and practitioners, their preferences exert considerable influence in the lexical development of Pilipino.

Each of the five spheres of science involved 60 respondents, subclassified into three groups: students, 20; professors, 20; and practitioners, 20. Each subgroup was further subclassified into two: Tagalogs (Tag), 10; and non-Tagalogs (NTg), 10.

The following chart shows the distribution of the respondents:

4.1.1 MED				60
	Questionnaire A	Questionnaire B		
Stud			20	
Tag	5	5		
NTg	5	5		
Prof			20	
Tag	5	5		
NTg	5	5		
Prac			20	
Tag	5	5		
NTg	5	5		
4.1.2 BIO				60
Stud			20	
Tag	5	5		
NTg	5	5		
Prof			20	
Tag	5	5		
NTg	5	5		
Prac			20	
Tag	5	5		
NTg	5	5		

	Questionnaire A	Questionnaire B		
4.1.3 CHE				60
Stud			20	
Tag	5	5		
NTg	5	5		
Prof			20	
Tag	5	5		
NTg	5	5		
Prac			20	
Tag	5	5		
NTg	5	5		
4.1.4 PHY				60
Stud			20	
Tag	5	5		
NTg	5	5		
Prof			20	
Tag	5	5		
NTg	5	5		
Prac			20	
Tag	5	5		
NTg	5	5		
4.1.5 MAT				60
Stud			20	
Tag	5	5		
NTg	5	5		

	Questionnaire A	Questionnaire B	
Prof			20
Tag	5	5	
NTg	5	5	
Prac			20
Tag	5	5	
NTg	5	5	
		Total Ss	300

4.2 Sampling Procedure

The following sampling procedure was generally observed in each of the institutions mentioned below which were included in the survey:

4.2.1 A letter of request addressed to a key official (usually the president or rector, as the case may be) of the institution to be surveyed was secured from Dr. Bonifacio P. Sibayan, President of the Philippine Normal College, the home institution of this researcher. (A sample of the letter is found in Appendix F.) This was done to solicit the unstinted cooperation of the institutions concerned.

The following school officials cordially and favorably responded to the request, for which a 'Thank-You' letter was correspondingly sent by President Sibayan to each of them after the survey (a sample of the letter is found in Appendix F):

Dr. Florentino Herrera
Dean, College of Medicine
University of the Philippines
Dr. Pedro Gil Street, Ermita, Manila

Dr. Amado C. Dizon
Vice President
Far Eastern University
Quezon Boulevard, Manila

Rev. Fr. Frederick Fermin
Rector
University of Santo Tomas
España Boulevard, Manila

Atty. Marcos Herras
Vice President
Adamson University
San Marcelino Street, Manila

Dr. Bienvenido F. Nebres, S.J.
Dean, School of Arts and Sciences
Ateneo de Manila University
Loyola Heights, Quezon City

Mr. Oscar B. Mapua
President
Mapua Institute of Technology
Muralla Street, Manila

Dr. Andrew B. Gonzalez, fsc
Academic Vice President
De La Salle University
Taft Avenue, Manila

Every letter of request was handed personally by this researcher to each of the above addressees. After some probing questions, the school head either called up or wrote a note to the department head of the area to be surveyed, usually with the request that all necessary assistance by accorded this researcher.

4.2.2 This researcher, with the note from the school head, then proceeded to meet the department chairman concerned, explained his purpose, and requested that he be furnished the following: (1) a list of professors in the department, and (2) the number of classes that could possibly be used for the survey.

With the help of the department chairman and his secretary, this researcher classified the list of professors into two groups: Tagalogs and Non-Tagalogs. The name of each professor in every group was written on a small sheet of paper, which was placed in a receptacle. From the receptacle were then drawn the desired number of respondents.

This procedure, however, was not exactly followed in selecting the samples from the University of the Philippines because the total number of medical professors listed was more than 230. Instead, this researcher, following the suggestion of Dr. Gerardo V. de Leon, Secretary and Associate Dean of the College of Medicine, picked out at random two respondents (one Tagalog and one Non-Tagalog) from each of the following specializations: pharmacology, anatomy, pathology, obstetrics, gynecology, and microbiology. Anticipating that some professors might not be readily available, the number of prospective respondents picked out was a little more than the desired number.

The same procedure was essentially followed in selecting the student samples. The class used in the survey was selected by drawing of lots, except of course in cases where there was only one class available and qualified for the survey.

Students who were in their senior year were chosen, as it was assumed that they were more knowledgeable in their respective areas of specialization than, say, freshmen students. In the cases, however, where the senior students proved to be very difficult to meet, as for instance when the medical senior students were out on internship, students in their junior year were used instead.

With regard to the practitioners, the sampling procedure employed was merely purposive for the simple reason that a comprehensive list of practitioners in each of the five disciplines of science was not available to this researcher. And even if such a list could have been obtained, to select only 20 respondents therefrom would have been impractical. Moreover, unlike the college students and professors, the practitioners selected from such a list would have been very difficult to reach, considering their working hours and the financial limitations of the study.

The most practical way, then, was to get the number of needed respondents through purposive sampling; that is, prospective respondents were selected according to some criteria.

The selection of practitioner-respondents was done in the following manner: The students of this researcher in the Philippine Normal College Graduate School, especially those teaching in schools run by religious orders, such as Maryknoll and Saint Paul, were requested to assist by finding from their school records who among the parents of their pupils could qualify as respondents — that is, as physicians, biologists, chemists, physicists, and mathematicians. The last two categories were generally composed of engineers (civil, mechanical, electrical, etc.). Their places of works and whether they were Tagalogs or Non-Tagalogs were ascertained from the school records. Then out of the list given to this researcher, the desired respondents were randomly chosen.

Questionnaires were then given to this researcher's students who in turn sent them to the selected parent-respondents, through their respective pupils.

And in order to be able to get sample respondents from outside Metropolitan Manila, students of this researcher who went home to the Visayas and Mindanao during the 1977 Christmas vacation were also requested to assist in the data-gathering.

The number of questionnaires filled out, however, exceeded the number of desired respondents (20 only from each of the five disciplines). The excess numbers were randomly picked out from the file and discarded.

4.3 Survey Instruments Used

Two sets of questionnaires were used for each of the five disciplines, or a total of ten questionnaires (see samples in Appendix A).

The first set of questionnaires was purely in English. Every questionnaire in each of the five disciplines contained 20 technical terms, thus making a total of 100 items. The format of the English questionnaire was such that an English technical term was given, and alongside, its corresponding dictionary definition. Immediately below this item were options for the respondent to choose from by encircling the letter corresponding to his preference, as alternative for the defined term.

Five options were regularly given for each item, the sixth being a blank space in case a respondent would prefer a term other than any of those listed.

The following were the types of options that a respondent could choose from:

1. Unchanged English term (coded E-1) - i.e., the same English term with no change in spelling; e.g. biology.

2. Respelled English term (coded E-2) - i.e., the same English term respelled to conform to the Abakada; e.g. bayolodyi.

3. Unchanged Spanish term (coded S-1) - i.e., the Spanish translation equivalent of the English term, with no change in spelling; e.g. biologia.

4. Respelled Spanish term (coded S-2) - i.e., the same Spanish translation equivalent, respelled to conform to the Abakada; e.g. biyolohiya.

5. Maugnayin term (coded M) - i.e., the term listed in the book Maugnaying Talasalitaang Pang-agham by the Lupon sa Agham of the NSDB; e.g. kapnayan. Maugnayin terms may be characterized as follows: (a) Current Tagalog, e.g. pampamuo 'coagulant'; (b) Archaic Tagalog, e.g. isig 'force'; (c) Philippine vernacular other than Tagalog, e.g. butod 'nucleus' (from Hiligaynon); (d) Coined or derived, e.g. sipnayanon 'mathematician' (isip + hanayan) + Visayan suffix -(n)on; and (e) Borrowed from influencing foreign languages, e.g. karbad 'carbide'.

In MED, however, the fifth option was assigned a different label, CT (Current Tagalog), because the indigenous terms used, except for numbers 17, 18, and 19, were not Maugnayin but mainly Current Tagalog which had been taken by this researcher from his own lexical repertoire or included on the basis of suggestions of the respondents during the tryout. The Maugnayin sexual terms tunod, punlay, and kaluban were included among the options for numbers 17, 18, and 19, respectively, to find out how the respondents would react to them as against the taboo and euphemistic terms.

The second set of questionnaires (Questionnaire B) contained the same 100 technical terms used in the first set (Questionnaire A). The only differences were that (1) the set for Questionnaire B was in Pilipino while the set for Questionnaire A was in English, and (2) the technical terms in Questionnaire B were used in context instead of merely having them defined.

Two sets of questionnaire — one in English and another in Pilipino -- were developed because any one set used could possibly be context-sensitive. If Questionnaires A (English text), for instance, would be the only instrument used, the text might lopsidedly influence the group of respondents to choose the English options. Furthermore, there was the likelihood that the respondents might not be able to experience the feeling that their preferences really appealed to them or reflected their true choice inasmuch as the terms were not used in context.

On the other hand, the set for Questionnaire B (Pilipino text) might also influence the choice of the other group of respondents, the text being in Pilipino. Thus it was anticipated that should there be no significant difference between the preferences of respondents who answered the set for Questionnaire A as against the preferences of respondents who answered the set for Questionnaire B, it would only prove that the supposed context-sensitivity of the two sets of questionnaires did not really exist. On the other hand, if the difference would be significant, it would be interpreted to mean that each set of questionnaires served to cancel out context-sensitivity of the other set. (See pages 87-9 for procedure of the sampling method.)

As regards the brand of Pilipino used in both sets of questionnaires, this researcher sought to remove any misgiving on his part by inquiring from the Institute of National Language if it was the same brand being propagated by that entity. The answer was in the affirmative. (See Appendix F.)

4.4 Tryout

A dry run of the survey instrument that had been developed was conducted with the following goals: (1) to spot weaknesses in the mechanics of the instruments, and (2) to find out if there were other better options that should have been used, especially in the indigenous terms.

Six respondents were used in each questionnaire, or a total of 60 respondents.

After the tryout, the following weaknesses were discovered and subsequently corrected:

(1) Some items had more than five options. Example (MED, Item No.15):

Parami nang parami ang tao sa Pilipinas, kaya't kailangan ang (PAGBABALAK-ANGKAN, FAMILY PLANNING, PAMILI PLANING, PLANIFICACION DE FAMILIA, PLANIPIKASYON DE PAMILYA, PAGPAPLANO NG PAMILYA, _____).

The problem that arose here was how to classify Pagpaplano ng pamilya. Should it be classified as S-2 or CT? If classified as S-2 because of the roots plano and pamilya, there would be two options for Spanish respelled terms. If classified as CT because of the affix pagpa- and the preposition ng, what would happen with pagbabalak-angkan? Pagpaplano ng pamilya, therefore, had to be excluded even if this researcher had the strong feeling that it is part of Current Tagalog. Significantly, this term came out to be the most preferred choice of the respondents (see Appendix B) in spite of the fact that it was not included among the five options.

(2) Some items had less than five options.

Example: (MED, Item No.10):

cardiograph - apparatus for making a graph of heart cycle.

a. kardyograp
b. cardiografo
c. kardyograpo
d. cardiograph
e. _____

This happened because this researcher could not find a CT term for cardiograph. This was also the case with other medical terms, such as osteopathy, cephalalgia, contraceptive, etc. This researcher thus had to come up with terms in order to fill the slot for CT. And so the following terms were thought up: larawan-pintig for 'cardiograph', sakit-buto for 'osteopathy', sakit-ulo for 'cephalalgia', panlaban sa pagbubuntis for 'contraceptive'.

(3) One item — algebra — having the same spelling in E-1 and S-1 was differentiated through the use of the primary stress mark during the tryout. It was discovered, however, that the mark was not enough to enable the respondents to distinguish one form from the other, so the phrases 'Spanish pronunciation' and 'English pronunciation' were added to the corresponding words, thus:

algebra - mathematical system used to generalize certain arithmetic operations by permitting letters or other symbols to stand for numbers.

a. algebra (Spanish pronunciation)
b. alhebra
c. panandaan
d. algebra (English pronunciation)
e. aldyebra
f. _____

(4) Some options were replaced with better ones as shown in the respondents' responses. For example, the option balik-sintomas (MED, Item No.7) was replaced with binat because more than one-half of the respondents wrote this word as their preferred term for 'recrudescence'.

4.5 Data Gathering/Analysis

The time spent in gathering data for this study covered roughly five months, commencing from the opening, and terminating at the close, of the second semester of the academic year 1977-78 (see dates of letters of PNC President to the different institutions involved in the study, Appendix F).

The collating and analysis of the data gathered were done during the summer period.

Since the study simply calls for comparing the respondents' choices, the chi-square test and Z-test were used with respect to its statistical treatment.

CHAPTER 5

PRESENTATION AND INTERPRETATION OF DATA

5.0 Introduction

As stated in Chapter 1, the general aim of this study is to determine how the intended users of Pilipino would react to the different possibilities in the elaboration of a Pilipino scientific lexicon. To achieve this aim, a survey was conducted on the preferences of college students, college professors, and practitioners for the probable use of certain terms in the disciplines or spheres of medicine, biology, chemistry, physics, and mathematics.

The results of the survey are topically presented in this chapter according to the specific problems stated in Chapter 1. Every result presented is subsequently followed by discussions and corresponding inferences.

5.1 Which of the lexical elaboration possibilities are most or least preferred by the intended users?

The following list shows the 'most' and 'least' preferred (highest- and lowest-ranked) choices for each of the 20 items of the questionnaire in each discipline or field by the corresponding 60 respondents (see Appendix B). The asterisked terms in the left-hand column are the options that were chosen by at least 50% of the respondents in each discipline; the asterisked terms in the right-hand column are the options chosen by 5% or less of the same set of respondents.

MED

Most Preferred	Least Preferred
1. *medisina (S-2)	1. *medisin (E-2)
2. dalubsakit-babae (CT/CD)	2. ginecologo (S-1)
3. *siruhano (S-2)	3. *sardyon (E-2)
4. alis bahay-bata (CT)	4. *histerectomia (S-1)
5. *apendisitis (S-2)	5. *maga-apendiks (CT/E-2)
6. mula-sakit (CT)	6. *etyolodyi (E-2)

7.	*binat (CT)	7.	*recrudesenscia (S-1)
8.	himatay (CT)	8.	*apoplejia (S-1)
9.	pagdugo-utak (CT)	9.	*serebral hemoreyds (E-2)
10.	kardyograpo (S-2)	10.	cardiografo (S-1)

Notes on the first ten entries:

In MED, the supposed indigenous terms were labelled CT (Current Tagalog) instead of M (Maugnayin) since they were not taken from the Maugnaying Talasalitaan book. They are terms supplied by this researcher, some of which were suggested by the respondents during the tryout.

The following numbers are excluded from the analysis due to some labelling difficulty:

No. 2 (dalubsakit-babae) as it could be classified either as CT or CD; a derivation from 'dalubhasa sa sakit ng babae'.

No. 5 (maga-apendiks) as it could not be classified as CT or E-2.

MED

Most Preferred		Least Preferred	
11.	*kontralagnat (CT)	11.	*antipiretico (S-1)
12.	*malatipus (CT)	12.	*paratifoidea (S-1)
13.	*sakit-ulo (CT)	13.	*sepalaldya (E-2) *cefalalgia (S-1)
14.	*sakit-buto (CT)	14.	*osteyopati (E-2)
15.	pagpaplano ng pamilya (CT/S-2)	15.	*planificacion de familia (S-1)
16.	panlaban sa pagbubuntis (CT/S-2)	16.	*contraceptivo (S-1)
17.	kabahagi (Eup)	17.	*pene (S-1)

18. *punlay (M)	18. *isperm (E-2)
19. butas (CT/Eup)	19. kiki (Tab)
20. pagpapatali (CT)	20. *vasectomia (S-1)
	*basektomya (S-2)

Notes on entries 1 to 20:

The following items are also excluded:

No. 15 (pagpaplano ng pamilya) as it could be classified either as CT or S-2).

Nos. 17, 18, and 19 as 'euphemistic, coined, and taboo' options, respectively, appear only in these numbers.

Accordingly, the total number of terms in MED included in the discussion is 14.

BIO

Most Preferred	Least Preferred
1. biyolohiya (S-2)	1. *bayolodyi (E-2)
2. biologist (E-1)	2. biologo (S-1)
3. anatomya (S-2)	3. *anatomi (E-2)
4. biological (E-1)	4. biologico (S-1)
5. palamulaan (M)	5. *dyenealodyi (E-2)
6. cell (E-1)	6. sel (E-2)
7. nukleo (S-2)	7. *nukleus (E-2)
8. kromosoma (S-2)	8. kromosom (E-2)
	cromosoma (S-1)
9. tissue (E-1)	9. *tejido (S-1)
10. mikroskopiko (S-2)	10. miksipatin (M)
11. *mikroskopyo (S-2)	11. *miksipat (M)
12. mikroorganismo (S-2)	12. *miktataghay (M)

13. *mikrobyo (S-2)	13. *mikhay (M)
14. germ (E-1)	14. *germen (S-1)
15. inorganiko (S-2)	15. *inorganik (E-2)
16. *nagbabanyuhay (S-2)	16. *nagmemetamorpays (E-2)
17. binutil (M)	17. *granillo (S-1)
18. embryo (E-1)	18. *embrion (S-1)
19. *karniboro (S-2)	19. *carnivoro (S-1)
20. aquarium (E-1)	20. *acuario (S-1)

CHE

Most Preferred	Least Preferred
1. kimika (S-2)	1. quimica (S-1)
2. substansya (S-2)	2. *substans (E-2)
3. kimiko (S-2)	3. *quimico (S-1)
4. ampirahe (S-2)	4. *ampireyds (E-2)
5. karburo (S-1)	5. *karbad (M)
6. *sangkapang kemikal (M)	6. *kemikal kompawnd (E-2) *compuesto quimico (S-1)
7. chlorate (E-1) klorato (S-2)	7. *clorato (S-1) *klorat (M)
8. asido kloriko (S-2)	8. *acido clorico (S-1)
9. pampamuo (M)	9. *coagulante (S-1)
10. colloid (E-1)	10. *coloide (S-1)
11. crystalline (E-1)	11. *cristalino (S-1)
12. dioxide (E-1)	12. *bioxido (S-1)
13. monoxide (E-1)	13. *monoxido (S-1)

14.	ebullition (E-1) pagkukumulo (M)	14. *ebullicion (S-1)
15.	efflorescence (E-1)	15. efflorescencia (S-1)
16.	metalurhiya (S-2)	16. metalurdyi (E-2)
17.	isomorphism (E-1)	17. *aysomorpism (E-2)
18.	radioisotope (E-1)	18. *radioisotopo (S-1)
19.	viscosity (E-1)	19. *viscosidad (S-1)
20.	precipitate (E-1)	20. *precipitado (S-1)

PHY

	Most Preferred	Least Preferred
1.	*pisika (S-2)	1. *fisica (S-1)
2.	pisiko (S-2)	2. *fisico (S-1)
3.	akustika (S-2)	3. *acustica (S-1)
4.	dinamika (S-2)	4. *dinamica (S-1)
5.	optika (S-2)	5. *dalubsugaan (M)
6.	termodinamika (S-2)	6. *termodinamica (S-1)
7.	atmospera (S-2)	7. *atmosfera (S-1)
8.	presyon atmosperika (S-2)	8. *presion atmosferica (S-1)
9.	puwersa sentripuga (S-2)	9. fuerza centrifuga (S-1)
10.	electrolyte (E-1) elektrolito (S-2)	10. *electrolito (S-1)
11.	malyabilidad (S-2)	11. *maleabilidad (S-1)
12.	molekula (S-2)	12. molecula (S-1)
13.	phosphorescence (E-1)	13. *fosforescencia (S-1)

14. repraksyon (S-2)	14. *refraccion (S-1)
15. init na lantad (M)	15. *calor latente (S-1)
16. baterya elektrika (S-2)	16. *bateria electrica (S-1)
17. termoelektrisidad (S-2)	17. *termoelectricidad (S-1)
18. baporisasyon (S-2)	18. *vaporizacion (S-1)
19. tulin (M)	19. *velocidad (S-1)
20. *boltahe (S-2)	20. *kabolthan (M)

MAT

Most Preferred	Least Preferred
1. *matematika (S-2)	1. *matematica (S-1)
2. *matematisyan (E-2)	2. *matematico (S-1)
	*sipnayanon (M)
3. álgebra (E-1)	3. algebrá (S-1)
4. geometry (E-1)	4. sukgisan (M)
5. aritmetika (S-2)	5. *aritmetica (S-1)
6. calculus (E-1)	6. *calculo (S-1)
7. aksyom (E-2)	7. axioma (S-1)
8. theorem (E-1)	8. hunain (M)
9. calculator (E-1)	9. *calculador (S-1)
10. konmutatibo (S-2)	10. *conmutativo (S-1)
11. tatsulok (SWP)	11. *tatsiha (M)
12. anggulo (S-2)	12. *enggel (E-2)
13. hypotenuse (E-1)	13. *iputenusa (S-2)
14. right angle (E-1)	14. rayt enggel (E-2)

15.	acute angle (E-1)	15. sihang kipot (M)
16.	oblique angle (E-1)	16. angulo oblicuo (S-1)
17.	cosecant (E-1)	17. *cosecante (S-1)
18.	cosine (E-1)	18. *coseno (S-1)
19.	infinite (E-1) di-hangganin (M)	19. impinit (E-2)
20.	finite (E-1) hangganin (M)	20. *paynayt (E-2)

Notes on MAT entries 1 to 20:

Nos. 11 (tatsulok) and 12 (sulok) are excluded as they are not Maugnayin terms. Tatsulok is a coined term by the Surian ng Wikang Pambansa, together with other terms like parisukat, parihaba, etc. which are now part of Pilipino lexicon; sulok is a current Tagalog word.

Tables 1 and 2 summarize the 'most' and the 'least' preferred options in each of the four disciplines or fields according to the different possibilities on the elaboration of a Pilipino scientific lexicon as outlined in Chapter 1. The data in these two tables are also presented in the form of graphs (Figure 1) for easy reading and interpretation.

The responses for MED are not included in this section. As stated earlier, the indigenous terms (labeled CT) used in this particular discipline were not taken from the Maugnaying Talasalitaan book. Analysis of these terms is presented in Section 5.1.3 instead.

Examination of the 'most' and the 'least' preferred options, and their corresponding tables and graphs, elicits the following:

5.1.1 There is a predominance of the S-2 (respelled Spanish terms) and the E-1 (English terms with no respelling) options over the E-2 (respelled English terms), the S-1 (Spanish terms with no respelling), and the M (Maugnayin terms) options. The average of the percentages obtained by each of the elaboration possibilities across the four disciplines shows that S-2 ranks first (46.04%), more preferred over E-1 which ranks a close second (39.79%). M ranks a very poor third (11.39), followed by E-2 (2.78%). S-1 (0%) ranks last.

Note that the results in Table 2 which show S-1 and E-2 as first and second, respectively, of the 'least preferred' options strongly complement the results in Table 1 where S-2 and E-1, as the 'most preferred' options, rank first and second, respectively.

TABLE 1

SUMMARY OF THE MOST PREFERRED ELABORATION POSSIBILITIES IN EACH OF THE FOUR SCIENCE DISCIPLINES

Coded Elaboration Possibilities	Disciplines				Average Percentage
	BIO (20)	CHE (20)	PHY (20)	MAT* (18)	
E-1	7	10.50	1	12	
%	35.00	52.50	5.00	66.67	39.79
E-2	0	0	0	2	
%	0	0	0	11.11	2.78
S-1	0	0	0	0	
%	0	0	0	0	0
S-2	10	6.50	17	3	
%	50.00	32.50	85.00	16.67	46.04
M	3	3	2	1	
%	15.00	15.00	10.00	5.56	11.39
					100.00%

Formula:

Given a discipline:

$$\text{Percentage} = \frac{\text{No. of 'most preferred' options}}{\text{Total no. of items}} \times 100$$

*Tatsulok (No.11) and sulok (No.12) are excluded as they are not Maugnayin terms.

TABLE 2

SUMMARY OF THE LEAST PREFERRED ELABORATION POSSIBILITIES IN EACH OF THE FOUR SCIENCE DISCIPLINES

Coded Elaboration Possibilities	Disciplines BIO (20)	CHE (20)	PHY (20)	MAT* (18)	Average Percentage
E-1	0	0	0	0	
%	0	0	0	0	0
E-2	7.5	4.5	0	3	
%	37.50	22.50	0	16.67	19.17
S-1	8.50	14	18	10.50	
%	42.50	70.00	90.00	58.33	65.20
S-2	0	0	0	1	
%	0	0	0	5.56	1.39
M	4	1.50	2	3.50	
%	20.00	7.50	10.00	19.44	14.24
					100.00%

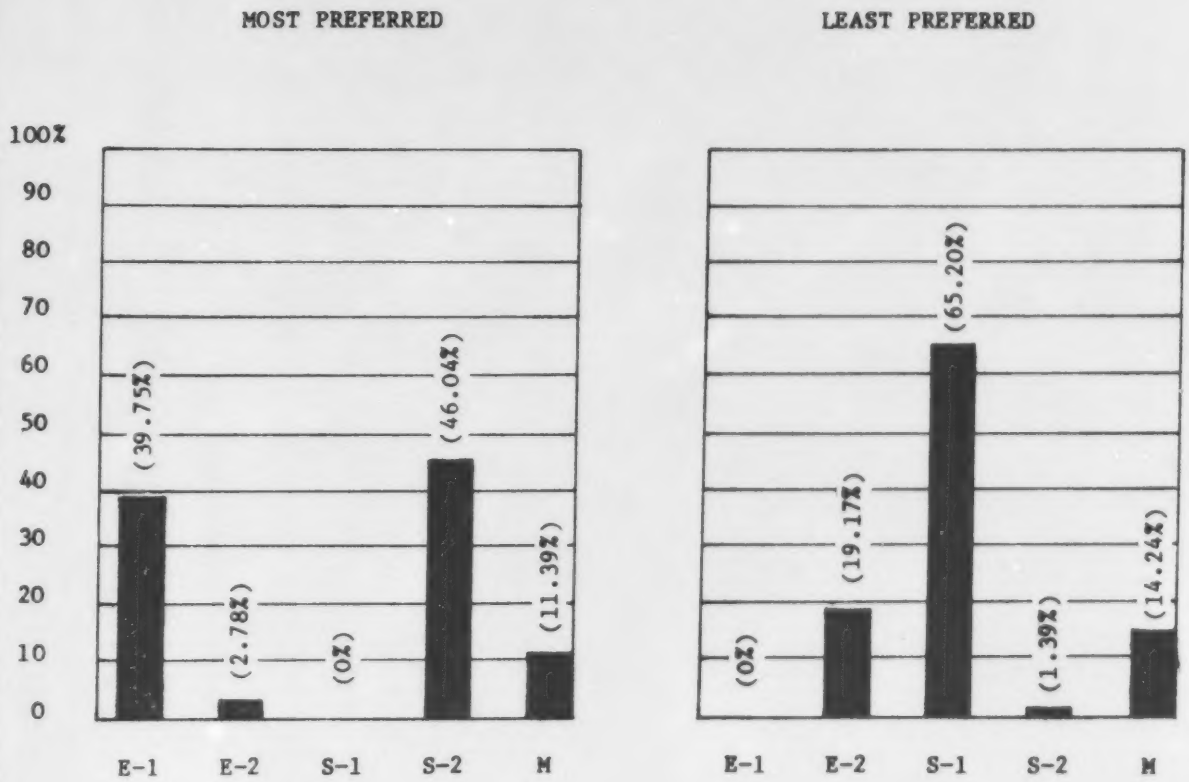
Formula:

Given a discipline:

$$\text{Percentage} = \frac{\text{No. of 'most preferred' options}}{\text{Total no. of items}} \times 100$$

*Tatsulok (No.11) and sulok (No.12) are excluded as they are not Maugnayin terms.

FIGURE 1


MOST PREFERRED
LEAST PREFERRED
100%
90
80
70
60
50
40
30
20
10
0
(39.75%)
(2.78%)
(0%)
(46.04%)
(11.39%)
(0%)
(19.17%)
(65.20%)
(1.39%)
(14.24%)
E-1
E-2
S-1
S-2
M
E-1
E-2
S-1
S-2
M

5.1.2 There is a considerably high rating obtained by most of the E-1 options, averaging 39.79% and second only to S-2. In MAT and CHE, the E-1 options obtained ratings as high as 66.67% and 52.50%, respectively. Yet note that E-1 obtained a comparatively low rating of 5.00% in PHY as against S-2's 85%. The reverse, however, happened for E-1 and S-2 in MAT where E-1 obtained a comparatively high rating of 66.67% as against S-2's 16.67%. These phenomena are not at all surprising since Table 1 shows only the 'most' preferred of the options. It could be possible that a better rating would come out for E-1 in PHY and for S-2 in MAT if the average percentage is taken not only from the highest-ranked options but from the frequencies obtained by all the options regardless of the ranking. This aspect will be investigated under Section 5.2.

Of the E-1 options among the 'most preferred' items, 22 contain the following 'foreign' letters and digraphs: c, ch, f, q, v, x, ll. The only letters and digraphs that did not appear are j, z and rr. On the other hand, in the S-1 'least preferred' options the digraphs ch and rr did not appear. (The letter ñ was not included in the survey because no representative technical terms containing it could be found by this researcher.)

The occurrence of the majority of the 'foreign' letters among the 'most preferred' options is in contrast with the results of the Cervantes, PNC, Rivero-Labigan, and Sumayo studies (see Chapter 3) in which not one of the 'most preferred' choices was spelled with a letter outside the Abakada. In fact, most of the E-1 terms were among the 'least preferred' choices in the aforesaid studies.

The reason perhaps is that in the present study, the terms used are relatively more technical than those used in the other studies. It could be tentatively inferred at this point that the higher one goes into more sophisticated terms, the stronger will the temptation be to adopt terms from English in their original spelling. Furthermore, the repondents in the present study are college senior students (in some unavoidable cases, junior students), college professors, and practitioners who are specializing or are already specialists in their respective disciplines or fields and, therefore, are more exposed and visually conditioned to E-1 forms. This is not the case with the Cervantes, PNC, Rivero-Labigan, and Sumayo studies. Moreover, it could also be possible that, lately, the puristic Abakada no longer holds sway in the teaching of Pilipino in the schools, in addition to the fact that the brand of Pilipino presently evolving in the mass media is no longer the puristic type.

5.1.3 Ten of the M terms were in the list of 80 'most preferred' options, as follows:

palamulaan	pagkukumulo
banyuhay	init na lantad

binutil	tulin
sangkapang kemikal	di-hangganin
pampamuo	hangganin

It is easily noticeable, however, that all of these ten words can also be classified as CT. They are in sharp contrast with the following other M terms which came out as 'least preferred' options:

miksipatin	dalubẽugaan
miksipat	kabolthan
miktataghay	sipnayanon
mikhay	sukgisan
karbad	hunain
klorat	tatsiha
sihang kipot	

The term banyuhay (No.2 in 'most preferred'), incidentally, is not a Maugnayin coinage. This term was already part of Pilipino literature even before the creation of the Lupon sa Agham of the NSDB (see HIYAS III 1965, p.225). Banyuhay is another good example of coining (the other one is punlay of the Lupon) that, although not even one morpheme is retrievable from it, nevertheless got accepted perhaps because of its euphonic sound. It is entirely different from the case of tatsulok that also got accepted (see Appendix B, MAT, No.11) evidently because it contains the Tagalog word sulok 'corner' which can be considered to be the stem, while tat-, although neither a full word nor an affix, nonetheless gives an immediate clue to the meaning 'three' because the word tatlo is still retrievable from it.

5.1.4 While S-2 (respelled Spanish term) was preferred by the respondents over S-1 (Spanish term with no change in spelling), it is the reverse of their reaction toward English in which E-1 (English term with no change in spelling) was preferred over E-2 (respelled English term). Consider the following samples culled from the data:

Most Preferred	Least Preferred
malyabilidad (S-2)	maleabilidad (S-1)
cell (E-1)	sel (E-2)
anggulo (S-2)	enggel (E-2)
calculus (E-1)	calculo (S-1)

There is not even a single instance that reverses this pattern or trend. The two E-2 terms matematisyan and aksyom that got included among the 'most preferred' options (there was none from S-1) have matematico (S-1) and axioma (S-1) as the 'least preferred' counterparts.

The reason perhaps is the inconsistency of the English spelling system and the consistency of the Spanish, respectively. In other words, a system of letter correspondences can easily be established between Spanish and Pilipino in the process of borrowing. The Spa c, for instance, can regularly be given the equivalent letters k or s in Pilipino, depending on what vowel follows it; e.g., Spa matematica becomes Pil matematika; Spa termoelectricidad becomes Pil termoelektrisidad; etc. Hence, when the respondent prefers the Spanish-sounding word, he borrows it but respells it to conform to the Abakada. This can not be easily done with terms borrowed from English because it is not possible to have a system of letter correspondences between English and Pilipino. Thus, when the respondent prefers the English-sounding word, he borrows it without changing its spelling, especially if respelling it would result in a strange or unfamiliar form. Asmah (1977:233) in describing the orthographic renderings in Bahasa Malaysia of some of the technical terms borrowed from the 'international scientific vocabulary' calls them 'visually repulsive'. She gave the following orthographic renderings of English loan words which she said proved to be 'visually repulsive' to scientists, academicians, and other users of Bahasa Malaysia:

haiderojan	'hydrogen'
maikerofilam	'microfilm'
sepiar	'sphere'
saikoloji	'psychology'

Asmah explains that an orthographic rendering of a loan word is visually repulsive to educated Malaysians if it is 'too far apart' from its counterpart in the source language; i.e., if the orthographic representation in Bahasa Malaysia of a borrowed term has a very low degree of similarity with its original spelling in the donor language.

In the Philippines, the late INL Director Jose Villa Panganiban called these visually repulsive forms 'funny looking'. Consider the following 'least preferred' forms which may have repelled the respondents because they appear strange or unfamiliar to them:

bayolodyi	'biology'
nukleus	'nucleus'
dyenealodyi	'genealogy'
paynayt	'finite'
osteyopati	'osteopathy'

Inference may be made at this point that rejection or acceptance of the spelling of a certain term is merely a matter of visual conditioning. Generally, educated Filipinos are so exposed or conditioned to the orthographic representation of English terms that they are likely to react negatively to the respelled forms.

As to where the cut-off point may be in order for the orthographic rendering of a word to be considered strange or unfamiliar is not within the scope of the study, inasmuch as the respondents were not asked which of the 'least preferred' terms were 'rejected' by them because of their orthographic renderings. A general inference may only be made, that rejection takes place when the original form is not visually transparent, traceable, or retrievable from the respelled form, which in effect makes the pronunciation of a borrowed word second only in importance to its orthographic representation.

5.2 Confronted with an English technical term, which of the four borrowing styles -- E-1, E-2, S-1, and S-2 -- will the intended users prefer?

In Problem 1, the discussion was focused on ascertaining which of the identified lexical elaboration possibilities were 'most' and 'least' preferred by the respondents. It was easily established from the data that S-2 was the 'most preferred' lexical elaboration possibility, followed closely by E-1, while S-1 proved to be the 'least preferred', followed by E-2 and M. This finding was based exclusively on the options included among the highest- and lowest-ranked items -- two extremes in the ranking scale. It did not show the collated standings of the different elaboration possibilities in each of the four disciplines.

This section is specifically devoted to determining how the four styles of borrowing fared in each of the five disciplines surveyed and how they comparatively stand when the percentages obtained in each of the five disciplines are collated and averaged. MED is now included since the analysis is confined only to the English and Spanish terms.

Table 3 shows the consolidated responses in each of the five disciplines according to preferred style of borrowing. It will be noted that although S-2 again ranks first and E-1 second, the difference between them appears to be insignificant, considering that there is an observed difference of only one-half of one percent, in their obtained average percentages (29.25% - 28.75% = .5%). This suggests that the respondents, at the time of the survey, were almost equally attracted to the E-1 and S-2 option-types.

TABLE 3

SUMMARY OF THE RESPONDENTS' BORROWING STYLE PREFERENCES

IN EACH OF THE FIVE SCIENCE DISCIPLINES

Borrowing Style	Disciplines					Total	Average Percentage
	MED	BIO	CHE	PHY	MAT		
E-1	210	335	429	334	380	1688	
%	20.59	27.92	35.75	27.83	31.67		28.75
E-2	85	140	120	172	227	744	
%	8.33	11.67	10.00	14.33	18.92		12.65
S-1	64	116	42	38	116	376	
%	6.27	9.67	3.50	3.17	9.67		6.46
S-2	210	379	357	482	290	1718	
%	20.59	31.58	29.75	40.17	24.17		29.25
Total	569	970	948	1020	1013	4526	

Formula: Percentage per borrowing style per group = $\frac{\text{No. of chosen category}}{60 \times 20} \times 100$

where 20 is the number of items and 60 is the number of respondents

Note: Responses for M/I options and 'Others' not included; in MED, number of items is 17 only.

Note further that if the total responses for E-1 and E-2 are added together, the result would be even higher than the sum of S-1 and S-2. This indicates that borrowing direct from English is becoming more and more preferred than borrowing via Spanish as the years go by, especially if one considers the fact that this was not the case just a few years back (see PNC, Rivero-Labigan, and other related studies in Chapter 3). This speculation, however, is premised on another speculation that the Filipinos will continually uphold English as their means of contact with the outside world and as a key to the storehouse of the world's knowledge, while at the same time either they will gradually renounce their possession of the Spanish language or Spanish will have an increasingly tenuous hold upon the younger generation.

This competition between E-1 and S-2 brings into focus the problem that presently besets the lexical elaboration of Pilipino. For while the borrowing of English technical terms in their original forms would undoubtedly contribute to the modernization or intellectualization of Pilipino, another equally complicated problem would inevitably crop up. And that is, should the Filipinos hold on to a consistent spelling system or give it up in favor of an inconsistent one?

Incidentally, the present study would not have been conceived at all, since it would be irrelevant, if the spelling system of Pilipino were inconsistent because any word from English, be it regularly or irregularly spelled, could be borrowed without any problem at all. English, by reason of its inconsistent orthography, can borrow any word from other languages without having any serious problem as to how an incoming word should be spelled.

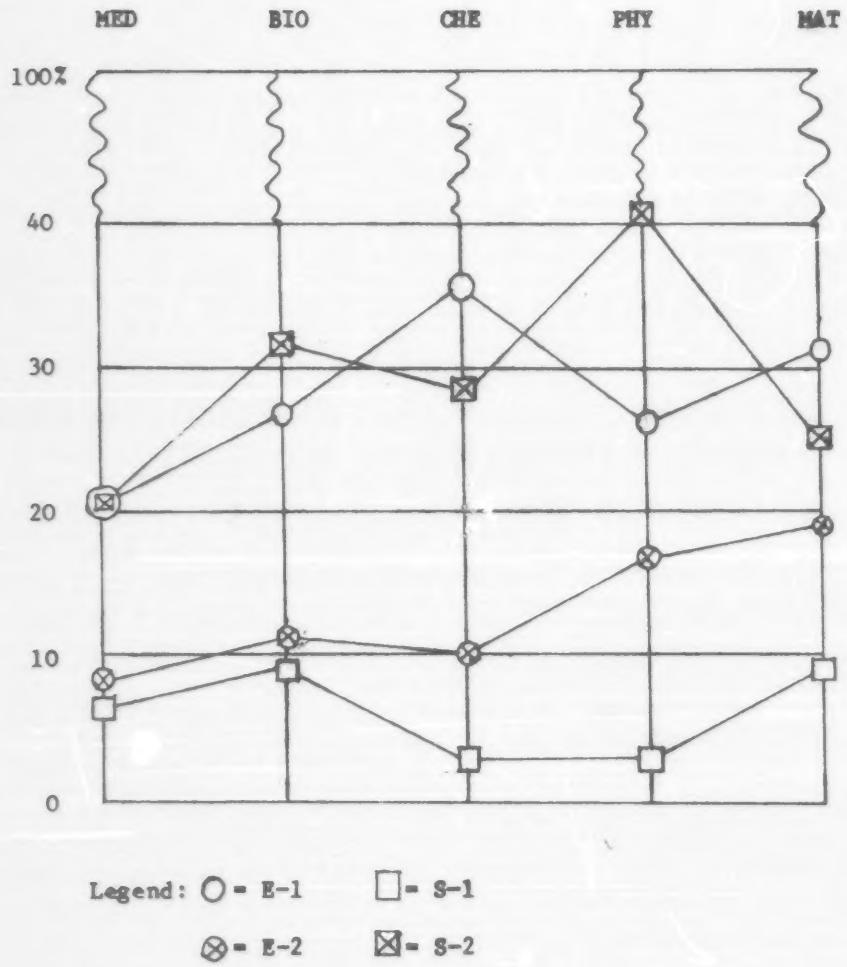
But for Pilipino to become inconsistent in its spelling system is not as simple as that. It would ramify into several equally complicated and serious problems which only those initiated in language development could be expected to foresee, especially if the present Pilipino becomes Filipino in the future and apparently borrowing will be more liberalized.

Figure 2 shows graphically the four borrowing styles split into two groups -- S-2 and E-1 on the one hand and S-1 and E-2 on the other. This juxtaposition confirms the findings in Section 5.1.

FIGURE 2

GRAPHIC COMPARISON OF BORROWING STYLE PREFERENCES

IN EACH OF THE FIVE DISCIPLINES



Finally, the very low percentage rating obtained by E-1 in PHY (Section 5.1) is rectified here when the analysis is based on the general results irrespective of rankings. It will be recalled that E-1 obtained only 5.00% in PHY as compared to 35.00% in BIO, 52.50% in CHE, and 66.67% in MAT. Table 3, however, reveals a different picture for E-1 in PHY wherein it obtained 27.83% as compared to 20.59% in MED, 27.92% in BIO, 35.75% in CHE, and 31.67% in MAT.

In connection with the tendency of the respondents to respell the terms being borrowed through Spanish and not to respell the terms being borrowed direct from English, this researcher, as an ancillary study, also looked into the possibility of a prevalent pattern in the process of assimilation of borrowed terminal formatives (suffixes and combining forms) either from English or from Spanish.

The following are the terminal formatives found in the 'most preferred' borrowed terms:

English Formative	Spanish Equivalent	Pilipino (Respondents') Preferences
-ine	-ina	S: medisina
		E: crystalline
-itis	-itis	S: apendisitis
-graph	-grafo	S: karáyograpo
-logy	-logia	S: biyolohiya
-ist	-ico	S: kimiko, pisiko
		E: biologist
-tomy	-tomia	S: anatomya
-ical	-ico	E: biological
-logical	-logico	S: biyolohiko
-some	-soma	S: kromosoma
-ic	-ico(a)	S: mikroskopiko
		atmosperika, kloriko
		inorganiko, electrika
		aritmetika

-ics	-ica	S:	matematika, pisika
			termodinamika
			akustika, dinamika
			optika
-scope	-scopio	S:	mikroskopyo
-ism	-ismo	S:	microorganismo
-ous	-o	S:	karniboro
-ium	-io	E:	akwaryum, aquarium
-ery	-eria	S:	baterya
-ance	-ancia	S:	substansya
-age	-aje	S:	amperahe, boltahe
-ate	-ato	S:	klorato
		E:	chlorate
			precipitate
-oid	-oide	E:	colloid
-ide	-ido	E:	monoxide, dioxide
-(a)tion	-(a)cion	S:	baporisasyon
			ebullition
-escence	-escencia	S:	posporesensya
		E:	efflorescence
			phosphorescence
-urgy	-urjia	S:	metalurhiya
-tope	-topo	E:	radioisotope
-ity	-idad	S:	malyabilidad
			termoelektrisidad
		E:	viscosity

-sphere	-sfera	S: atmospera
-lyte	-lito	S: elektrolito
-ule	-ula	S: molekula
-ician	-ero(a)	E: matematisyan
-metry	-metria	E: geometry
-ator	-ador	E: calculator
-ative	-ativo	S: konmutatibo

Although the above data are obviously insufficient, they suggest a pattern in the assimilation of English terminal formatives into Pilipino in this wise: Given an English term, the borrower tends to assimilate it via Spanish. However as to which segment of the term — the terminal formative of the stem — makes the borrower decide that he will borrow it via Spanish is not deducible from the data. It could be possible that the borrower merely looks at the form of the term as an aesthetic whole, as it were, unmindful of its morphemic parts. And if the Spanish equivalent is known or acceptable to him, he proceeds to transliterate it to conform to the Abakada. This tendency of borrowing via Spanish may have a correlation with the longer historical contact that the majority of the Filipinos have had with Spanish as compared with English, a tendency which prevails up to the present because of the 'barrier' imposed by the inconsistent orthography of English. Whinnom (in Hymes 1971:66) refers to this kind of barrier as 'mechanical' -- the incompatibility of the two languages in contact in phonological structures and in orthography.

But one very strong tendency of the borrower as manifested in the data is that whenever he borrows a term via Spanish, he always respells it to conform to the Abakada. But when he decides to borrow it direct from English, he usually spells it as is or without any spelling alterations, especially if the resulting altered form will appear unusual to him.

A look at the 'Other Responses' of respondents (see Appendix B), however, would reveal that a number showed some kind of confusion in their responses, such as:

Other Responses	English	Spanish
apoplexya	apoplexy	apoplejia
kardiograf	cardiograph	cardiografo
bayolohista	biologist	biologo
anatomika	anatomy	anatomia

bayolohikal	biological	biologico
aysomorphismo	isomorphism	isomorfismo
termodinamics	thermodynamics	termodinamica
heyometri	geometry	geometria
rektong enggel	right angle	angulo recto
oblikong enggel	oblique angle	angulo oblicuo

It is not, however, unnatural for the phenomenon to occur during the process of development of Pilipino which after all straddles two major linguistic traditions — Spanish and English.

5.3 Aside from borrowing from English and Spanish, how would the intended users react to the following other lexical elaboration possibilities?

5.3.1 Getting the equivalent or near equivalent of the English term from the following sources:

5.3.1.1 Current Tagalog

5.3.1.2 Archaic Tagalog

5.3.1.3 Vernaculars

5.3.2 Coining or Deriving

It was mentioned in Chapter 3 that in the first lexical elaboration guidelines formulated in the Philippines and embodied in Commonwealth Act No.184, the first step prescribed to be followed was to 'use as a source primarily the Philippine tongues (Cebuano, Ilocano, Hiligaynon, Pampango, Waray, Pangasinan, etc.)'.

It will be noted that the retrieval of Old Tagalog words is not specifically mentioned. This notwithstanding, the zealous members of the Lupon sa Agham of the NSDB apparently found wisdom in including Old Tagalog words as one of the possible sources, next to Current Tagalog words. In fact, adoption of Old Tagalog words was even given priority over the vernaculars as sources of needed words (see Chapter 3, pp.50-1).

It would seem that the Lupon also found wisdom in the coining of terms derived mostly from Tagalog roots.

Table 4 shows the subclassification of the indigenous terms used in this study, the total number of responses obtained by each term and the corresponding percentage. The indigenous terms were subclassified into four types as follows: Current Tagalog (CT), Archaic Tagalog (AT), Vernacular (V), and Coined or Derived (CD). Some euphemistic (Eup) and taboo (Tab) words were included as special entries for MED (see numbers 17, 18, and 19 of Questionnaires 1-A and B in Appendix A).

The CT terms were those used in the MED questionnaire. Added to these terms were those used in the four other disciplines and taken from the Maugnaying Talasalitaan. The AT, V, and CD terms were also taken from the Maugnayin. The Tab and Eup terms were supplied by this researcher.

TABLE 4

SUBCLASSIFICATION OF THE INDIGENOUS TERMS USED IN THE STUDY SHOWING THE TOTAL RESPONSES AND PERCENTAGES OBTAINED BY EACH OPTION

	Current Tagalog	Total Responses	Percentage*
MED	alis-bahay-bata	25	41.67
	binat	35	58.33
	butas	16	26.67
	kontra-lagnat	36	60.00
	himatay	25	41.67
	malatipus	32	53.33
	mula-sakit	14	23.33
	pagbabalak-angkan	12	20.00
	pagdugo-utak	21	35.00
	pagpapatali	26	43.33
	panggagamot	19	31.67
	panlaban sa pagbubuntis	25	41.67
	sakit-buto	34	56.67
	sakit-ulo	43	71.67
BIO	bimutil	17	28.33
	isdaan	15	25.00

*Percentage = $\frac{\text{No. of responses}}{\text{No. of respondents (60) per discipline}} \times 100$

	Current Tagalog	Total Responses	Percentage
BIO	nagbabanyuhay	31	51.67
	palamulaan	27	45.00
CHE	bagay	17	28.33
	himuo	18	30.00
	pagkukumulo	17	28.33
	pampamuo	24	40.00
	sangkapang kemikal	36	60.00
PHY	kahanginan	13	21.67
	kahanginang diin	12	20.00
	init na lantad	29	48.33
	tulin	27	45.00
MAT	di-hangganin	17	28.33
	hangganin	17	28.33
	sulok	17	28.33
	tatsulok	23	38.33
	Archaic Tagalog		
MED	bilig	5	8.33
	kaluban	13	21.67
	maninistis	9	15.00
	tunod	2	3.33
BIO	butod	7	11.67
CHE	balahakan	6	10.00
	bubugin	9	15.00

	Archaic Tagalog	Total Responses	Percentage
CHE	lapuyot	11	18.33
	maladigkit	10	16.67
PHY	isigan	3	5.00
MAT	batlain	8	13.33
	hunain	6	10.00
	pantaya	6	10.00
	siha	0	0.00
	sihang kipot	8	13.33
	sihang tadlong	7	11.67
	sihang talibas	7	11.67
	tagway	6	10.00
	tayahan	4	6.67
	Vernacular		
BIO	kulaylawas (Vis.)	7	11.67
CHE	halintubig (Vis.)	13	21.67
PHY	dalubsugaan (Vis.)	3	5.00
	Coined or Derived		
MED	punlay (punla ng buhay)	13	55.00
BIO	binhay (binhi ng buhay)	13	21.67
	ditaghayin (hindi + tatag + buhay + -in)	7	11.67

	Coined or Derived	Total Responses	Percentage
BIO	haynayan (buhay + hanayan)	9	15.00
	haynayanon (haynayan + Vis. suffix -(n)on)	9	15.00
	haynayin (haynay + -in)	8	13.33
	katwanan (katawan + -an)	10	16.67
	mikhay (mikmik + buhay)	2	3.33
	miksipat (mikmik + sipat)	3	5.00
	miksipatin (miksipat + -in)	4	6.67
	miktataghay (mikmik + tatag + buhay)	3	5.00
	sihay (silid na may buhay)	15	25.00
	sihayan (sihay + -an)	14	23.33
CHE	kapnayan (sangkap + hanayan)	10	16.67
	kapnayanon (kapnayan + Vis. suffix -(n)on)	6	10.00
	kasanyuan (ka- + isang + anyo + -an)	17	28.33
	dagilapkahasik (dagiitab + iglap + kahasik)	6	10.00

	Coined or Derived	Total Responses	Percentage
CHE	daluksad (dalawa + oksad)	11	18.33
	sanuksad (isang + oksad)	10	16.67
PHY	basisig (palabas na isig)	6	10.00
	dagilusaw (dagitab + lusaw)	6	10.00
	initdagitban (init + dagitab + -an)	5	8.33
	initsigan (init + isig + -an)	3	5.00
	liknayan (likas + hanayan)	4	6.67
	liknayanon (liknayan + Vis. suffix -(n)on)	4	6.67
	mulatil (mulaang butil)	6	10.00
	pospowanag (posporus + liwanag)	6	10.00
	saliko (sa + liko)	5	8.33
	sasingaw (sa + singaw)	11	18.33
	tinggalitab (tinggalan ng dagitab)	4	6.67
MAT	bilnuran (bilang + sunuran)	5	8.33
	kasekway (ka- + sek + tagway)	7	11.67

	Coined or Derived	Total Responses	Percentage
MAT	kasinway (ka- + sin + tagway)	7	11.67
	Euphemistic		
MED	kabahagi	25	41.67
	Taboo		
MED	kiki	5	8.33
	tamod	5	8.33
	titi	7	11.67

The words below were excluded from the list because this researcher met some difficulty in classifying them. The reasons for their exclusion are stated before each group of words.

1. Words that contain both Tagalog and English elements:

   kabolthan (bolt [volt] + ka-...-han)

   kaampiran (ampir [ampere] + ka-...-an)

   maga-apendiks (apendiks [appendix])

2. Words that are obviously English- or Spanish-derived:

   karbad (carbide)

   asido klorat (chloric acid)

   klorat (chlorate)

3. Words, the roots and affixes of which are Tagalog, but which connote strange, vague, or ambiguous meanings which are already rather remote from the meanings of the English terms:

   tunugan 'acoustics'

   laman-kainin 'carnivorous'

pagkapukpukin	'malleability'
panandaan	'algebra'
pælitin	'commutative'
larawan-pintig	'cardiograph'

4. Words that can be classified either as CT or CD:

dalubsakit-babœe (dalubhasa sa sakit ng babae)

Table 5 shows the total number of responses with the corresponding percentage for each of the different types of indigenous terms in each of the four disciplines. The data are also interpreted graphically (Figure 3) from which it can be seen that CT is easily the most preferred among the four types. AT, V, and CD received very low ratings such that they can easily be lumped into a group of the 'least preferred'.

TABLE 5

SUMMARY OF RESPONSES ON THE INDIGENOUS TERMS IN THE FOUR DISCIPLINES SUBCLASSIFIED INTO FOUR TYPES

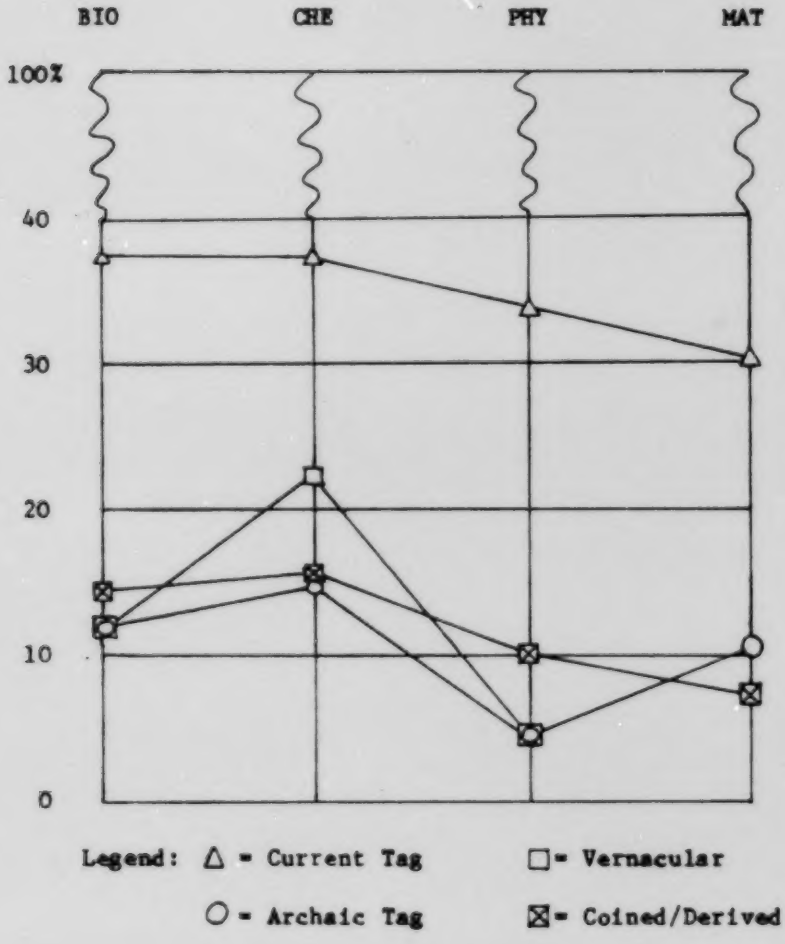
Subclassification	Disciplines				Average Percentage
	BIO	CHE	PHY	MAT	
Current Tagalog	$\frac{90}{240}$ 37.50	$\frac{112}{300}$ 37.33	$\frac{81}{240}$ 33.75	$\frac{74}{240}$ 30.83	34.85
Archaic Tagalog	$\frac{7}{60}$ 11.67	$\frac{36}{240}$ 15.00	$\frac{3}{60}$ 5.00	$\frac{55}{540}$ 10.19	10.47
Vernacular	$\frac{7}{60}$ 11.67	$\frac{13}{60}$ 21.67	$\frac{3}{60}$ 5.00	*—	12.78
Coined or Derived	$\frac{97}{720}$ 13.47	$\frac{60}{360}$ 16.67	$\frac{60}{660}$ 9.09	$\frac{30}{420}$ 7.14	11.59

Formula: Percentage = $\frac{\text{Total no. of responses}}{60 \times \text{no. of items}} \times 100$ where 60 is the total number of respondents.

*No options taken from the vernaculars are included in the questionnaire.

FIGURE 3

GRAPHIC COMPARISON OF THE RESPONDENTS' PREFERENCES ON THE FOUR TYPES OF INDIGENOUS TERMS



These data strongly indicate that of the alternatives mentioned in this section, CT should be the principal source of terms for the lexical elaboration of Pilipino. In other words, Pilipino, being Tagalog-based, should naturally draw words chiefly from its base. The other sources may be resorted to only after CT has failed to provide the needed terms. Since this is dictated by popular choice, and not by mere fiat of government authorities, there should be no objection to this mode which apparently has a taint of purism in it. What would be objectionable is a unilateral determination and imposition by, say, a governmental arbiter. At the same time, the arbitrary retrieval of 'dead' Tagalog words and affixes and handpicking of words from the Philippine vernaculars, as well as the coining or deriving of terms, are possibilities that should be resorted to only with utmost restraint.

Table 6 shows the result for MED, which is analyzed separately here for reasons stated earlier. Note the inclusion here of Eup and Tab terms which were not taken up in the preceding discussions.

It should first be pointed out before interpreting the table that the percentage obtained by CT is not to be compared with the rest because of the nature of entries in the questionnaire. It will be recalled that, unlike those used for BIO, CHE, PHY, and MAT, the indigenous terms used for MED (No.1-16, 20) were not drawn from the Maugnayin book. Furthermore, the AT, CD, Eup and Tab terms refer only to sexual terms included in numbers 17, 18, and 19, specifically as follows: AT - tunod, kaluban; CD - punlay; Eup - kabahagi; Tab - titi, kiki, tamod.

TABLE 6

SUMMARY OF REPONSES ON THE INDIGENOUS TERMS

IN MED SUBCLASSIFIED INTO FOUR TYPES

Subclassification	No. of Responses ÷ No. of Items x 60	Percentage
Current Tagalog	$\frac{363}{840}$	43.21
Archaic Tagalog	$\frac{15}{120}$	12.50
Coined or Derived	$\frac{33}{60}$	55.00
Euphemistic	$\frac{25}{60}$	41.67
Taboo	$\frac{17}{180}$	9.44

Formula: Percentage = $\frac{\text{Total no. of responses}}{\text{No. of items x 60}}$ x 100
where 60 is the total number of respondents.

Note that tunod and kaluban can also be classified as Exp, but this researcher decided to classify them as AT because they are no longer known to the majority of the present generation. (Only 2 out of 43 second year students in the Philippine Normal College said that they understood these words.)

The data, therefore, may be interpreted as follows:

The high percentage obtained by CT (43.21%) in MED corroborates the result in a separate analysis for the four other disciplines where CT also easily came out as the 'most preferred' over the other types (see Table 5). This percentage is higher than any of the percentages obtained by CT in BIO, CHE, PHY, and MAT. This phenomenon is not hard to understand, since MED is a profession that is essentially in frequent and close contact with the people, not the least the masses. Unlike a biologist, a chemist, a physicist, or a mathematician, a physician or surgeon has to use terms that are easily understood by his patients, if he is to succeed in the practice of his profession. In fact, one problem that really bothers a medical practitioner is how he can communicate and maintain rapport with his patients, especially on topics that pertain to sex. A medical practitioner engaged in information dissemination on family planning, for instance, finds it really difficult to communicate with his Pilipino-speaking clients through English. But if he shifts to Pilipino, another problem confronts him: How can he discuss sex with his clients without being branded 'bastos' (ill-mannered) or 'walang modo' (uncultured)?

This is the reason why this researcher decided to include a few samples of euphemistic and taboo terms for sex to find out, as an ancillary study, how the respondents would react to them. The CD term punlay (< punla ng buhay) of the Lupon was also included to find out how the respondents would react to this kind of lexical elaboration possibility with regard to sex.

The result indicates that, on matters pertaining to sex, euphemism and coining are preferred by the respondents over the other options. The taboo terms are among the 'least preferred'. The other terms (kaluban 'sheath, scabbard' and tunod 'young, unopened banana leaf') did not fare as well as kabahagi and punlay possibly because they are more recognizable as archaic rather than euphemistic.

From this result, the inference may be made, although admittedly tentative because of the scanty number of items and respondents used in the survey, that resorting to euphemisms, particularly with reference to sex, is still very much part of Pilipino culture. The Maugnayin term punlay received a high rating (most preferred, 55.00%) perhaps because of its euphonious sound; i.e., it is pleasing to the ear and at the same time gives an immediate clue to the intended taboo term in spite of the fact that the way it was coined can not be accepted as ordinary since punl and ay are not morphemes taken from the stem punla and buhay, respectively. The strong factor for its acceptance, it would seem, is aesthetic consideration.

This kind of coinage is reminiscent of some of the coinages in the English language. The term splurge, for example, which is an onomatopoetic word, was derived from 'splash + surge'; or smog, which is picturesque, came from 'smoke + fog'. (Webster's New World Dictionary 1970).

Finally, it might be recalled that in Section 5.2, S-2 and E-1 were shown to be 'competing' as the two 'most preferred' lexical elaboration possibilities. That was when CT, which was formally discussed only in Section 5.3, was not yet part of the picture. A comparison of the average percentages obtained by CT, S-2, and E-1, however, reveals that CT easily edged out the other two.

On the other hand, V, E-2, AT, CD, and S-1 came out as unfavored options compared to the other three. It should be pointed out, however, that these unfavored options are not by all means to be discarded in favor of CT, S-2, and E-1. They still form part of the subset of options that are to be resorted to when the three most preferred possibilities fail.

5.4 Will there be a significant difference in the preferences of respondents in each of the following groups on the different possibilities of developing a Pilipino scientific lexicon: Group 1 - College Students, College Professors, and Practitioners; Group 2 - Medicine, Biology, Chemistry, Physics, and Mathematics; Group 3 - Tagalogs and Non-Tagalogs?

5.4.1 Students, Professors, Practitioners

Table 7 summarizes the frequencies and proportions of preferences of the three groups of respondents in the disciplines of BIO, CHE, PHY, and MAT. MED is again excluded from the analysis since the indigenous terms used in the questionnaire for this discipline were not taken from the Maugnayin book (except in numbers 17, 18, and 19 where some M terms for sex were included).

The data show that there appears to be a general pattern of preferences among the three groups of respondents. This can be seen from Figure 4 where the three lines representing the STUD, PROF, and PRAC groups generally follow the same route.

It also appears that all the three groups of respondents opted favorably for the E-1 and S-2 option-types and reacted unfavorably to the E-2, S-1, and M option-types, as can be seen from the total frequencies obtained by each.

TABLE 7

PREFERENCES OF STUDENTS, PROFESSORS, AND PRACTITIONERS

IN BIO, CHE, PHY, AND MAT*

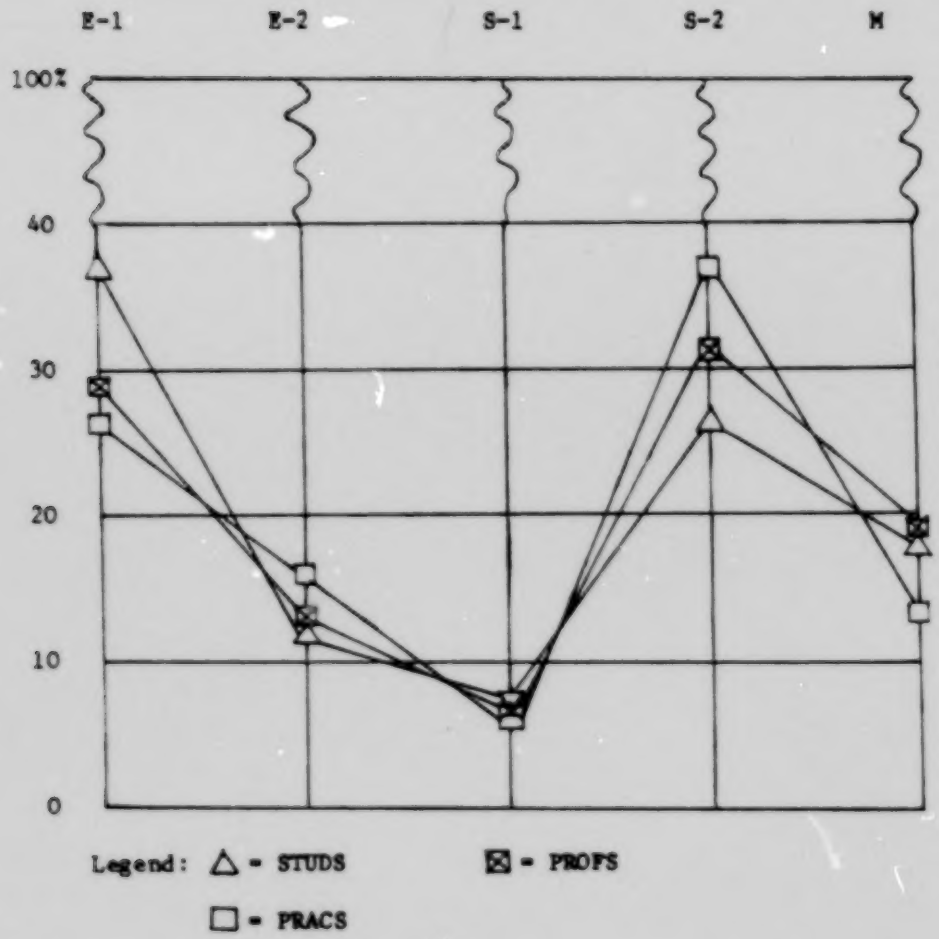
Respondents	Option-Types/Percentages						Total
	E-1	E-2	S-1	S-2	M	Others	
STUD	590	202	104	410	282	12	1600
%	36.88	12.63	6.50	25.63	17.62	.75	
PROF	458	214	112	497	290	29	1600
%	28.62	13.38	7.00	31.06	18.12	1.81	
PRAC	430	243	96	601	209	21	1600
%	26.88	15.19	6.00	37.56	13.06	1.31	
Total	1478	659	312	1508	781	62	4800

Formula: $\text{Percentage} = \frac{\text{No. of chosen category}}{\text{Total no. of responses per group}} \times 100$

*MED excluded; terms used not from Maugnayin.

FIGURE 4

GRAPHIC COMPARISON OF THE OVERALL RESPONSES OF STUDS, PROFS, AND PRACS IN EACH OF THE FIVE OPTION-TYPES



To find out if there is a significant difference in the preferences of the three groups of respondents, the chi square test of independent proportions was used.

The overall result of the chi square test (Table 8) indicates that there is a significant difference in the preferences of the three groups, the X^2 being 86.34, highly significant at the .01 level. This implies that there is a significant departure from the assumed null hypothesis that there will be no difference in the preferences of the three groups of respondents on the specified possibilities in the lexical development of Pilipino in respect to science.

Guilford (1965:230-2), however, suggests that in analyzing data of this kind, one has to look into the chi square value of the individual rows to find out which of them may have entirely or mainly caused the significant difference. Such suggestion is adopted in this analysis.

The data on the lower portion of Table 8 show five chi squares in the last column, one for each set of frequencies for the five types of responses. Each chi square is obtained by getting the sum of the cell values in the row. The five chi squares are then added together to get the overall value which is 86.34.

TABLE 8

RESULT OF CHI SQUARE TEST ON THE PREFERENCES OF STUD, PROF, AND PRAC GROUPS

Option-Types		Groups			Total
		STUD	PROF	PRAC	
E-1	f_o	590	458	430	1478
	f_e	495.370	490.067	492.563	
E-2	f_o	202	214	243	659
	f_e	220.872	218.508	219.620	
S-1	f_o	104	112	96	312
	f_e	104.570	103.451	103.978	
S-2	f_o	410	497	601	1508
	f_e	505.425	500.014	502.561	
M	f_o	282	290	209	781
	f_e	261.762	258.960	260.278	
Total		1588	1571	1579	4738
Row 1 (E-1)		18.077	2.098	7.046	28.121
Row 2 (E-2)		1.612	.093	2.489	4.194
Row 3 (S-1)		.003	.706	.612	1.321
Row 4 (S-2)		18.016	.018	19.282	37.316
Row 5 (M)		1.565	3.721	10.102	15.388
Total		39.273	6.636	40.431	86.34

*$p < .01$ $X^{2}_{.99,8}$ = table value

Note that the chi square values that are mainly, if not entirely, responsible for the overall significant difference are those of Rows 1 and 4. A look at the individual cell values in each of the two rows shows that in Row 1, the cell value for the STUD group (18.088) representing their responses on E-1 options, is the principal source of the significant chi square value for that row — the cell value for the STUD group (18.016) representing their responses on S-2, and the cell value for the PRAC group (19.282) representing their responses also on S-2 options. All these large cell values have accordingly brought about the high significant overall chi square value.

In each of the cell values singled out, it may be noted that the discrepancy between the f_e and f_o is rather large. The STUD group opted more favorably for the E-1 options, the f_e in this case being 495.370 as against the f_o of 590, or a discrepancy of 94.63 in favor of observed frequencies. The STUD group's responses on S-2 also show a large discrepancy between the f_e and f_o but in an inverse way, the f_e being 505.425 as against the f_o of only 410, or a discrepancy of 95.45 in favor of expected frequencies.

Looking at the reaction of the PRAC group, it is interesting to note that the trend of their responses is the reverse of those of the STUD group as far as the S-1 and S-2 options are concerned. Note that in Row 4, the large cell value of 19.282 indicates that the PRAC group opted more favorably for S-2 and less favorably for S-1. The illustration below shows the contrast:

	E-1	S-1
STUD	590 (39.92%)	410 (27.19%)
PRAC	430 (29.09%)	601 (39.85%)

The above contrasting preferences of the STUD group, representing the younger generation, and the PRAC group, representing the older generation, may be understood in the light of the contrasting exposure of the two groups to English and Spanish linguistic traditions. The STUD group has a more limited exposure to Spanish than the PRAC group.

The main objective of this section is to find out if there is a significant difference in the preferences of the three groups of respondents for each of the option-types. At this point, the objective has not yet been realized since the preceding discussion on the results of chi square test does not give an accurate answer to the problem. In fine, the use of the chi square test alone does not tell whether the responses of the STUD group on the E-1 options, for instance, are significantly different from those of the PROF and PRAC groups, nor the responses of the PROF group from those of the PRAC group.

To realize the above objective, the Z-test of independent proportions was applied, using the following formula of Ferguson (1966:176-8):

$$Z = \frac{P_1 - P_2}{\sqrt{pq\left(\frac{1}{N_1} + \frac{1}{N_2}\right)}}$$

P_1 = proportion for group 1

P_2 = proportion for group 2

P = estimate of the population proportion

$q = 1 - p$

N_1 = no. of cases for group 1

N_2 = no. of cases for group 2

The result of the Z-test (Table 9) reveals that the proportions of E-1 and S-2 responses among the STUD, PROF, and PRAC groups are all significant except those between PROF and PRAC on E-1. These significant differences may be interpreted as indicative of an actual difference in the preferences of the three groups of respondents, while at the same time there appears to be a general pattern of preferences among them.

The Z-test was also applied to the 'least preferred' option-types — E-2, S-1, and M.

The result of the Z-test (Table 10) reveals that the proportions of E-2, S-1, and M responses among the STUD, PROF, and PRAC groups are not significant. Exceptions, however, are the proportions of responses between PROF and PRAC and between PRAC and STUD on M option-types which are significant at the .01 level, and between PRAC and STUD on E-2 which is significant at the .05 level.

TABLE 9

RESULT OF THE Z-TEST OF INDEPENDENT PROPORTIONS ON E-1 AND S-2 OPTION-TYPES AMONG STUDENTS, PROFESSORS, AND PRACTITIONERS

	E-1			S-2		
	f	p	z ratio	f	p	z ratio
STUD & PROF	590 458	.3688 .2862	4.9782**	410 497	.2563 .3106	3.4079**
PROF & PRAC	458 430	.2862 .2688	1.0991 ns	497 601	.3106 .3756	3.8725**
PRAC & STUD	430 590	.2688 .3688	6.0697	601 410	.3756 .2563	7.2584**

$Z_{.005} = -2.58$ $Z_{.995} = +2.58$

**$p < .01$

TABLE 10

RESULT OF THE Z-TEST OF INDEPENDENT PROPORTIONS ON E-2, S-1, AND M OPTION-TYPES AMONG STUDENTS, PROFESSORS, AND PRACTITIONERS

	f	p	z ratio	f	p	z ratio	f	p	z ratio
STUD & PROF	202 214	.1263 .1338	 .6308	104 112	.0650 .07	 .5637	282 290	.1762 .1812	 .3691
PROF & PRAC	214 243	.1338 .1519	 1.4632	112 96	.07 .06	 1.1473	290 209	.1812 .1306	 3.9449**
PRAC & STUD	243 202	.1919 .1263	 2.0926*	96 104	.06 .0650	 .5842	209 282	.1306 .1762	 3.5786**

*p < .05

**p < .01

The above result implies that the STUD and PROF groups reacted more favorably to the M terms of the NSDB than the PRAC group did. The reason perhaps is that the STUD and PROF groups, being composed of school people, are comparatively more exposed to the M terms than the PRAC group since these terms are being promoted mostly through the schools. At the same time, it must be mentioned that the favorable reactions of the STUD and PROF groups to M terms were confined to those that may be said to be aesthetically pleasing auditorily or visually.

Note, however, that in the case of the proportion of E-2 responses between the PRAC and STUD groups, the significance is brought about by only .13 ($Z = 2.0926$, $p<.95$). Nevertheless, statistically, it implies that the PRAC group favors the E-2 more than the STUD group does. This could have been due to the receptivity of the STUD group to E-1 options more than that of the PRAC group. In other words, a student-respondent who opts for the English-sounding options usually prefers the E-1 over the E-2 forms more than does a practitioner-respondent also opting for English-sounding options (see Table 7).

Incidentally, the finding that the STUD group favors the E-1 forms more than the PROF and PRAC groups do, strengthens the speculation made by this researcher in Section 5.2 that E-1 will become more and more favored as the years go by, as long as the mediums of instruction in the schools will continue to be bilingual — English and Pilipino — even without regard to the subject taught. It may be recalled that in the PNC Study in 1972, six years ago, not even one E-1 term (0%) got included in the list of the 20 'most preferred' items, and 3 of them (15%) got included in the list of the 'least preferred' items. In the present study, however, 33 E-1 terms (33%) already got included in the list of the 100 'most preferred' items, and significantly, not even one E-1 term (0%) got included in the list of the 'least preferred' items. At this rate, the speculation could really be that in the years to come E-1 terms (English terms with no change in spelling) will more and more get into the Pilipino scientific lexicon.

It should, however, be immediately pointed out that different populations and questionnaires were used in the PNC and in the present study. The above observation, therefore, regarding the rise of E-1 terms in the rank of preferences should be regarded as merely indicative of a possible trend that needs formal verification.

5.4.2 MED, BIO, CHE, PHY, and MAT

Table 11 summarizes the preferences of the five groups of respondents in MED, BIO, CHE, PHY, and MAT. This time MED is included in the analysis since the comparison is among the five disciplines of science covered by the survey.

TABLE 11

PREFERENCES OF RESPONDENTS IN MED, BIO, CHE, PHY, AND MAT

Disciplines	Elaboration Possibilities/Percentages						Total
	E-1	E-2	S-1	S-2	M/I*	Others	
MED**	210	85	64	210	378	73	1020
%	20.59	8.33	6.27	20.59	37.06	7.16	
BIO	335	140	116	379	212	18	1200
%	27.92	11.67	9.67	31.58	17.67	1.50	
CHE	429	120	42	357	232	20	1200
%	35.75	10.00	3.50	29.75	19.33	1.67	
PHY	334	172	38	482	167	7	1200
%	27.83	14.33	3.17	40.17	13.92	.58	
MAT	380	227	116	290	130	57	1200
%	31.67	18.92	9.67	24.17	10.83	1.75	
Total	1688	744	376	1718	1119	175	5820

Formula: $\frac{\text{No. of chosen category}}{\text{Total no. of responses per group}} \times 100 = \text{Percentage}$

*I is the cover symbol used for the indigenous terms used in MED; the terms not taken from the Maugnayin book; 378 represents the total number of responses for I terms.

**Nos. 17, 18, and 19 in MED excluded.

FIGURE 5

GRAPHIC COMPARISON OF THE PREFERENCES OF RESPONDENTS IN MED, BIO, CHE, PHY, AND MAT

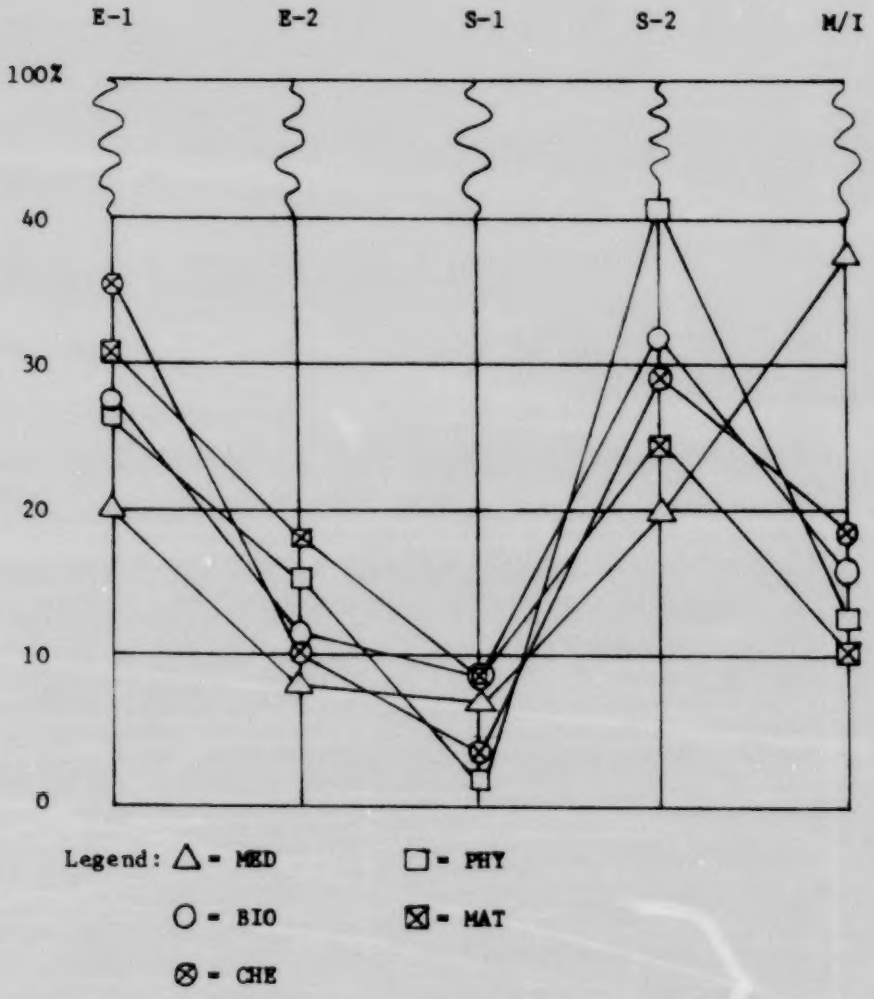


Figure 5, a graphic representation of Table 11, shows that there is also an observable general pattern in the preferences of the respondents in the five disciplines. In Section 5.4, where the preferences of the STUD, PROF, and PRAC were compared, this researcher pointed out that there appears to be a close 'competition' between the two most preferred option-types — E-1 and S-2 — with S-2 having a slight edge over E-1. The same 'competition' is also discernible in this particular data. The only deviations from the pattern appear to be the following:

First, there is a comparatively high percentage rating obtained by S-2 in PHY (40.15%). The deviance in PHY was already pointed out in Section 5.1 as being in an inverse manner where E-1 obtained a comparatively very low percentage rating because S-2 was evidently the choice of the majority of respondents. This unusual result could have been brought about by the very nature of the items used. It was too late for this researcher to realize that five out of the 20 items had an identical noun-forming suffix — ics. Ordinarily, this formative ending which denotes 'science' or 'study' is assimilated into Pilipino by way of the Spa -ica, respelled as -ika to conform to the Abakada, as in matematika 'mathematics', linggwistika 'linguistics', etc.

The five English terms with their corresponding S-2 forms which were the popular choices of the respondents are shown below:

English	Pilipino	
physics	pisika	(< Spa fisica)
acoustics	akustika	(< Spa acustica)
dynamics	dinamika	(< Spa dinamica)
optics	optika	(< Spa optica)
thermodynamics	termodinamika	(< Spa termodinamica)

This case of oversight, however, brings into focus one interesting aspect of borrowing English terms by way of Spanish. For one difficulty that arises in borrowing an English term is when its affix (or affixes) does not have a regular correspondence in Spanish affixes. This supposed 'via Spanish' manner of borrowing also occurred in the other English affixes (supra, pp.124 et seq.).

Second, there is a comparatively high percentage rating obtained by I (indigenous) terms in MED as compared to those in other disciplines. The comparison, however, may not be tenable since the I terms used in MED were not Maugnayin. It should be pointed out that the M terms used in the study were mostly CD (Coined/Derived) with some CT (Current Tagalog), AT (Archaic Tagalog), and V (Vernacular) terms added.

To find out if there is a significant difference in the preference of the five groups of respondents, the chi square test was again used.

The overall result of the chi square test (Table 12) strongly indicates that there is a significant difference in the preferences of the five groups, the X^2 being 509.13, highly significant at the .01 level. Even the five chi square values (see column 5) for the individual rows are also significant. The cells that are principally responsible for the significant difference can be easily noted. Thus, from among the five rows, it is the chi square for the fifth row (M/I responses) that has contributed immensely to the significance of the difference, with the cell value of the MED group (192.87) as the chief source of the highly significant difference.

This means that the discrepancy between the f_e and f_o for the MED group is exceptionally large. Looking at the actual figures, we find that the MED group opted more favorably for the I options, the f_e being only 187.72 as against the f_o of 378, resulting in a large discrepancy of 190.28.

The strong preference shown by the MED group for the I terms does not come as a surprise because, as already discussed in Section 5.3, MED, unlike the other four disciplines or fields, pertains to a profession that is in close contact with the people, not the least with the masses.

TABLE 12

RESULT OF THE CHI SQUARE TEST ON THE PREFERENCES OF MED, BIO, CHE, PHY, AND MAT GROUPS

Preferences		Groups					Total
		MED	BIO	CHE	PHY	MAT	
E-1	f_o	210	335	429	334	389	1688
	f_e	283.18	353.45	352.85	356.74	341.79	
E-2	f_o	85	140	120	172	227	744
	f_e	124.81	155.79	155.52	157.24	150.65	
S-1	f_o	64	116	42	38	116	376
	f_e	63.08	78.73	78.60	79.46	76.13	
S-2	f_o	210	379	357	482	290	1718
	f_e	288.21	359.73	359.12	363.08	347.86	
M/I	f_o	378	212	232	167	130	1119
	f_e	187.72	234.31	233.91	236.49	226.58	
Total		947	1182	1180	1193	1143	5645
Row 1		18.91	.96	16.43	1.45	4.27	42.02
Row 2		12.70	1.60	8.11	1.39	38.69	62.49
Row 3		.01	17.64	17.04	21.63	20.88	77.20
Row 4		21.22	1.03	.01	38.95	9.62	70.83
Row 5		192.87	2.12	.02	20.42	41.16	256.59
Total		245.71	23.35	41.61	83.84	114.62	509.13

*$p < .01$

Certain preferences gave rise to large discrepancies between expected frequencies and observed frequencies. Thus, in Row 2, the value 38.69 corresponding to the E-2 options preferred by the MAT group is also relatively high, implying that there is likwise a large discrepancy between f_e and f_o in favor of the latter. The data show that the MAT group gave favorable responses to the E-2 options as compared to the responses of the other groups. Similarly, in Row 4, the value 38.95 corresponding to the S-2 options preferred by the PHY group is also high. The data indicate that the PHY group opted more favorably for the S-2 options as compared to the other groups' responses. The reason for this has been discussed earlier in this section. Again, in Row 5, the value 41.16 that corresponds to the M options preferred by the MAT group is also high. This time, as may be seen from the data, the MAT group responded less favorably to the M options as compared to the other groups. This could have been a converse reaction of the MAT group which apparently should be expected in the face of their more favorable response to the E-2 options as compared to those of the other groups.

To find out which among the five groups differ significantly in their preferences in each of the options, the Z-test of independent proportions was again used.

TABLE 13

RESULT OF THE Z-TEST ON EACH OF THE E-1, S-2, AND M/I RESPONSES

BY THE MED, BIO, CHE, PHY, AND MAT GROUPS

Pairs	E-1			S-2			M/I		
	f	p	z ratio	f	p	z ratio	f	p	z ratio
MED & BIO	210 335	.2059 .2792	3.9992**	210 379	.2059 .3159	5.8503**	378 212	.3706 .1767	10.3069**
MED & CHE	210 429	.2059 .3575	7.8624**	210 357	.2059 .2975	4.9322**	378 232	.3706 .1933	9.3261**
MED & PHY	210 335	.2059 .2783	3.9525**	210 482	.2059 .4017	9.925**	378 167	.3706 .1396	12.9121**
MED & MAT	210 380	.2059 .3167	5.8897**	210 290	.2059 .2417	2.0124**	378 130	.3706 .1083	14.6617**

*p < .05 **p < .01

Pairs	S-1			S-2			M/I		
	f	p	z ratio	f	p	z ratio	f	p	z ratio
BIO & CHE	335 429	.2792 .3575	4.1174**	379 357	.3158 .2975	.9721 ns	212 232	.1767 .1933	1.0472 ns
BIO & PHY	335 334	.2792 .2783	.0492 ns	379 482	.3158 .4017	4.3870**	212 167	.1767 .1396	2.4921*
BIO & MAT	335 380	.2792 .3167	2.0085*	379 290	.3158 .2417	4.0481**	212 130	.1767 .1083	4.7931**
CHE & PHY	429 334	.3575 .2783	4.1662**	357 482	.2975 .4017	5.3528**	232 167	.1933 .1392	3.5594**
CHE & MAT	429 380	.3575 .3167	1.9990*	357 290	.2975 .2417	3.0803**	232 130	.1933 .1083	5.8178**
PHY & MAT	334 380	.2783 .3167	2.0575*	482 290	.4017 .2417	8.3903**	167 130	.1392 .1083	2.2985*

*p < .05 **p < .01

It can be seen from Table 13 that except for three Z's (those with double bar marks), all are significant at the .05 or .01 level. Again, it is in the responses of the MED group to the I options (cf chi square test, Table 12) that the Z's are comparatively high, implying that there is really a large discrepancy in the responses to the I terms between the MED group and any of the four other groups.

5.4.3 TAG and NTG Groups

Table 14 summarizes the preferences of the TAG and NTG respondents. The accompanying graph (Figure 6) shows a strong indication that there is also a pattern of preferences between the two groups similar to those found in the preceding discussions for the two other groups. That is to say, to the TAG and NTG groups, S-2 and E-1 also came out to be their 'most preferred' option-types, S-2 being slightly favored over E-1 with a frequency difference of only 30. The M/I, E-2 and S-1 option-types, as usual, came out as 'least preferred' in that order. Once more, the M/I options fared better here because of the favorable reaction of the MED group to the I terms.

The chi square test was also applied to determine whether or not there is a significant difference in the preferences of the two groups of respondents.

TABLE 14

PREFERENCES OF THE TAG AND NTG RESPONDENTS IN THE FIVE SCIENCE DISCIPLINES*

Groups	Option-Types/Percentages						Total
	E-1	E-2	S-1	S-2	M/I**	Others	
TAG	805	430	154	870	571	84	2914
%	27.63	14.76	5.28	29.86	19.60	2.88	
NTG	883	314	222	848	588	51	2906
%	30.39	10.81	7.64	29.18	20.23	1.75	
Total	1688	744	376	1718	1159	135	5820

Formula: $\text{Percentage} = \frac{\text{No. of chosen category}}{\text{Total no. of responses per group}} \times 100$

*Nos. 17, 18, and 19 in MED excluded.

**I is the cover symbol used for the indigenous terms used in MED; the terms were not taken from the Maugnayin book.

FIGURE 6

GRAPHIC COMPARISON OF THE PREFERENCES OF

TAG AND NTG RESPONDENTS

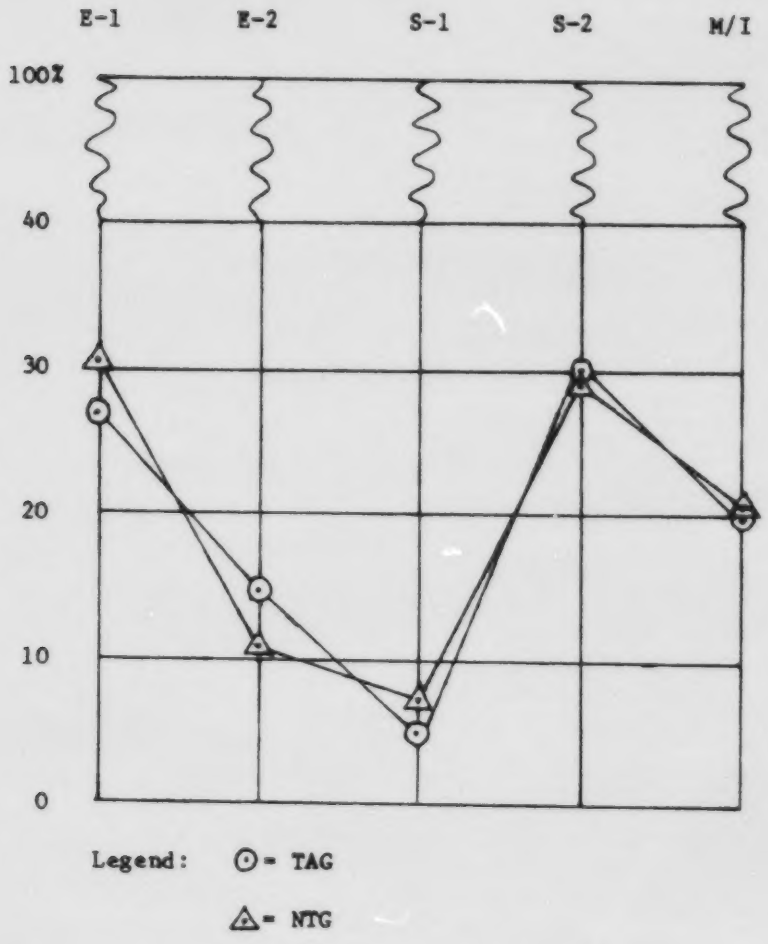


TABLE 15

RESULT OF THE CHI SQUARE TEST ON THE RESPONSES OF TAG AND NTG GROUPS

Option-Types		Groups		Total
		TAG	NTG	
E-1	f_o	805	883	1688
	f_e	840.288	847.712	
E-2	f_o	430	314	744
	f_e	370.364	373.636	
S-1	f_o	154	222	376
	f_e	187.173	188.827	
S-2	f_o	870	848	1718
	f_e	855.223	862.777	
M/I	f_o	571	588	1159
	f_e	576.952	582.048	
Total		2830	2855	5685
Row 1 (E-1)		1.482	1.469	2.951
Row 2 (E-2)		9.603	9.518	19.121
Row 3 (S-1)		5.879	5.828	11.707
Row 4 (S-2)		.955	.953	.108
Row 5 (M/I)		.061	.061	.122
Total		17.08	16.925	34.009

**$p < .01$

The overall result of the chi square test (Table 15) indicates that there is also a significant difference in the preferences of the two groups, the X^2 being 34.009, significant at the .01 level. Note, however, that the X^2's 19.121 and 11.707 for Rows 2 (E-2) and 3 (S-1), respectively, readily stand out as the main sources of the significant overall chi square. The large values in all four cells in these two rows signal that there are equally large discrepancies in the f_e and f_o for E-2 and S-1 among both the TAG and NTG respondents.

The two significant chi squares may be attributable to the following: The TAG group opted favorably for the E-2 options, the f_e being only 370.364 as against the f_o of 430, or a difference of 59.636 in favor of observed frequency. The reaction of the NTG, on the other hand, is the reverse of that of the TAG groups — the f_o is only 314 whereas the f_e is 373.636, or a difference also of 59.636 in favor of expected frequency. Further, the reactions of the two groups to the S-1 options is the reverse of their reactions to E-2 — the TAG group responding less favorably, the f_e being 167.173 as against the f_o of only 154, or a discrepancy of 23.173 in favor of expected frequency; the NTG group responding more favorably, the f_e being 188.827 as against the f_o of 222, or a discrepancy of 23.173 in favor of observed frequency.

These resulting discrepancies between the f_e and the f_o of the two 'least preferred' option-types — E-2 and S-1 — could have arisen from the very nature of the responses of the two groups on the two 'most preferred' option-types — E-1 and S-2.

The above observations imply that the TAG group has the tendency to respell borrowed terms according to the Abakada regardless of whether they are Spanish- or English-sounding. The NTG group, on the other hand, has the tendency to retain the original spelling of borrowed terms.

As to why the TAG group prefers the 'abakadized' spelling more than the NTG group does, this could perhaps be attributed to the possibility that the TAG group is more exposed, by reason of linguistic proximity, to the INL's influence.

It should be mentioned at this stage, however, that E-2 and S-1, which have brought about the significant overall chi square value, are the consistent 'least preferred' option-types in all the analyses in this study. In fact, if the X^2 values of the three rows are summed up, excluding the E-2 and S-1 rows, the resulting X^2 value will not be significant (2.951 + .108 + .122 = 3.181).

The implication of these data would seem to be that the TAG and NTG dichotomy is not a factor to reckon with in connection with the elaboration of the technical lexicon of Pilipino in the fields under investigation, considering that there is essentially no difference in their preferences in the 'most preferred' option-types. In fact, the proportions of responses between the two groups are separated only by a very negligible difference of .44%. The non-significance is confirmed by the application of a Z-test on the two proportions (see formula on page 151), the result of which is 2.32, $p<.01$.

Finally, the impression that the TAGs are inclined to propagate a national language that is puristic Tagalog (supra, pp.22 et seq.) is not supported by the data in this study. In fact, the total responses of the NTG group for the M/I terms (588, or 20.23%) were even higher than those of the TAG group (571, or 19.60%).

5.5 Are the English (Questionnaire A) and Pilipino (Questionnaire B) texts used in the survey context-sensitive?

Table 16 summarizes the frequencies and proportions of the 300 respondents, one-half of whom used Questionnaire A (English text) and the other half Questionnaire B (Pilipino text). As stated in Section 4.3 under methodology, two sets of questionnaires were devised for the survey as a safeguard in respect to possible context-sensitivity.

Figure 7, a graphic representation of Table 16, shows that there is again a general pattern in the responses of the two groups, S-2 as usual obtaining the highest frequency, followed closely by E-1. In third position, again, is M/I, while E-2 and S-1 are once more in poor fourth and fifth positions, respectively.

TABLE 16

RESULT OF THE CHI SQUARE TEST ON CONTEXT SENSITIVITY OF THE TWO TYPES OF QUESTIONNAIRES USED

Questionnaires		Option-Types					Total
		E-1	E-2	S-1	S-2	M/I	
A (English)	f_o	927	331	201	868	537	2864
	f_e	844.87	374.16	189.09	868.00	587.89	
B (Pilipino)	f_o	753	413	175	858	632	2831
	f_e	835.13	369.84	186.91	858.00	581.11	
Total f_o		1680	744	376	1726	1169	5695
Row 1 (Q-A)		7.98	4.98	.75	.00	4.41	18.12
Row 2 (Q-B)		8.08	5.04	.76	.00	4.46	18.34

p .01

Note: Responses for 'Others' (Q-A = 46; Q-B = 79) are excluded from the computation.

TABLE 17

PERCENTAGE OF RESPONSES IN EACH OF THE FIVE OPTIONS

BY THE TWO GROUPS — ENGLISH AND PILIPINO

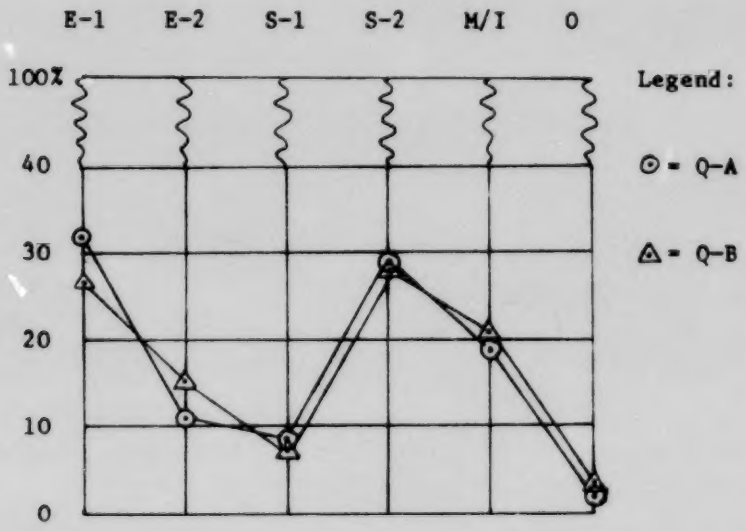
Questionnaire	Option-Types						Total
	E-1	E-2	S-1	S-2	M/I	O	
A (English)	31.86	11.37	6.91	29.83	18.45	1.58	100
B (Pilipino)	25.88	14.19	6.01	29.49	21.72	2.71	100

FIGURE 7

GRAPHIC COMPARISON OF RESPONSES ON FIVE LEXICAL

ELABORATION OPTION-TYPES BETWEEN

QUESTIONNAIRES A AND B



To find out if there is a significant difference between the responses of the two groups, the chi square test was again used. The result (Table 16) shows that the overall X^2 value is 36.45, significant at the .01 level. The two X^2's, 18.12 and 18.34 (see last column), obtained by getting the sum of the cell values in each row, are also significant.

An analysis of the individual cell values in each of the two rows, however, reveals that it is the cells that correspond to the respondents' reaction to E-1, E-2, and M/I option-types that are mainly responsible for the resulting significant chi square values.

The large values in all the six cells in the two rows signal that there are large discrepancies between the f_e and the f_o for E-1, E-2, and M/I in both the two groups of respondents that used the English and Pilipino questionnaires.

Comparing the frequencies (and corresponding proportions) obtained on each of the option-types by the two groups, certain observations can be made as shown below:

	E-1	S-2	M/I
Q-A	927	331	537
	31.86%	11.37%	18.45%
Q-B	753	413	632
	25.88%	14.19%	21.72%

For the E-1 options, Group A responded more favorably as compared to Group B, implying that the Pilipino text exerted influence upon the manner of spelling the borrowed English terms. In other words, the consistency of the Pilipino orthography may be said to have influenced the respondents to respell the English terms to conform to the Abakada.

To find out if the proportions of the responses between the two groups in each of the above-mentioned option-types is significant, the Z-test of independent proportions was again used. The result is shown below:

	E-1	E-2	S-1	S-2	M/I
Z value	4.797*	1.1477	1.2744	.00004	3.3377*

*$p < .01$

The result of the Z-test shows that the differences in the responses of Groups A and B to both E-1 and M/I options are significant at the .01 level. It may thus be concluded that both the English and Pilipino questionnaires are context-sensitive. The use of the two sets of questionnaires is then justified inasmuch as it can be deduced from the data that the context-sensitivity of one set of questionnaires is somehow counteracted by the context-sensitivity of the other. In other words, the influence of the text in the responses of the respondents is neutralized, each set cancelling out the context-sensitivity of the other.

CHAPTER 6

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

6.0 Summary

The different lexical elaboration possibilities assumed in this study, aside from getting the exact or near equivalent of the English term from CT, are: (1) borrowing via Spanish, direct from English, and from Philippine vernaculars, (2) coining, and (3) retrieval or revival of old, archaic indigenous words, especially Tagalog.

This study sought to find out how the intended users of Pilipino would react to these different possibilities in the development of a scientific lexicon for the language.

In order to achieve this aim, a survey of preferences for the different lexical elaboration possibilities was conducted in the fields of medicine, biology, chemistry, physics, and mathematics, involving 100 college students, 100 college professors, and 100 practitioners, or a total of 300 respondents. These respondents were classified into two linguistic groups — Tagalogs and non-Tagalogs.

Two sets of questionnaires (one in English and the other in Pilipino) were used for each of the five disciplines or fields surveyed. Each set of questionnaires contained 20 technical terms in each discipline, thus making a total of 100 terms.

6.1 Findings and Conclusions

Analysis of the questionnaire data brought forth certain findings from which conclusions can be drawn as given below.

6.1.1 The use of Current Tagalog words was the principal means favored by the respondents. This suggests that in the elaboration of a Pilipino scientific lexicon, the terms needed may be drawn primarily from Current Tagalog indigenous terms. The other sources are to be resorted to only if there are no available Current Tagalog terms. This conclusion may appear to be platitudinous and redundant because Pilipino, being Tagalog-based, should naturally draw words from its base, and therefore, Current Tagalog should not be included as one of the possible sources for the elaboration procedure. In the Philippine context, however, a statement of this kind holds significance, especially if one considers that a limit to, say, borrowing English words and phrases cannot be definitely fixed, and that borrowing can grow to such proportions as may threaten to overwhelm and eventually de-stabilize Pilipino as a distinct language.

At this point, one realizes the wisdom behind the 'authentication' efforts of the Filipinos' forebears as manifested in their early grammar books and edicts.

6.1.2 Respelled Spanish terms (S-2) came out to be the most preferred forms in borrowing. This means that terms being borrowed direct from English may be assimilated into Pilipino via corresponding Spanish (or Spanish-sounding) words perhaps because it is relatively easier to borrow words from a language that uses an equally consistent orthography than from one that has an inconsistent spelling system.

6.1.3 Borrowing of English terms with no change in spelling (E-1) showed a sudden rise in the ranks (being a close second to S-2) as compared to its very unpopular status in the PNC, Rivero-Labigan, and Sumayo studies. It is to be pointed out, however, that the terms used in this study were comparatively more technical than those used in the other surveys. This seems to lead to the conclusion that one's preference for E-1 terms may tend to be stronger as one goes into more sophisticated or highly intellectualized fields of knowledge.

It has to be made clear, however, that the data in the present study show a rise in percentage of popularity of E-1 terms ONLY in the sphere of the technical lexicon of Pilipino. They do not show whether E-1 terms will rank as high in the elaboration of its nontechnical lexicon since that is not within the scope of this study. At any rate, the conclusion that can be made at this point is that there is a greater preference for borrowing English terms without respelling than for borrowing them in their respelled forms; this would make the entry of 'foreign' letters into the Abakada inevitable, such that consistency in the spelling system of Pilipino would no longer be strictly observed. This confirms what Gleason (1961:422) says, that 'conformity to some other writing system, even at the expense of one-to-one relationship (between the phoneme and the symbol), may sometimes be desirable, especially in areas where bilingualism is common'.

Furthermore, the apparent rise in popularity of E-1 terms may also be attributed to the fact that English continues to occupy a premier status in Philippine life while Spanish is slowly on its way out. Continued visual exposure to English terms conditions the schooled Filipino to favor the orthographic representation of words in that language. And because the English spelling system is inconsistent, words from that language, especially those highly inconsistent ones, are usually borowed into Pilipino with no change in spelling. By virtue of that visual conditioning to English terms, respelling of borrowed English words to conform to the Abakada usually results in unusual if not grotesque forms that are not favored because the original words are no longer transparent from the respelled words; apparently aesthetic considerations exert an influence in the matter of choice. This explains why the respelled forms (S-2) are preferred when the borrowing is from Spanish while the forms with no change in spelling (E-1) are preferred when the borrowing is from English.

6.1.4 The lexical elaboration possibilities that can be categorized among the 'least preferred' are: (a) borrowing from Spanish with no spelling alteration, (b) borrowing from English with spelling alteration, (c) coining, (d) retrieval of archaic indigenous words, and (e) borrowing from the Philippine vernaculars.

Borrowing from Spanish with no spelling alteration (S-1) and borrowing from English with spelling alteration (E-2) as among the 'least preferred' possibilities are predictable since their counterparts, Spanish with spelling alteration (S-2) and English with no spelling alteration (E-1), rank among the 'most preferred' possibilities.

It should be made clear at this point, however, that so far as pronunciation is concerned, S-1 and E-2 were not rejected by the respondents. In fact, had the survey been oral instead of written, there would have been no way of distinguishing S-1 from S-2 and E-1 from E-2. What was rejected in S-1 and E-2, therefore, was the spelling and not the pronunciation.

The terms used to represent lexical elaboration possibilities (c), (d), and (e) are mainly M terms because, except for a very few, they were taken from the Maugnayin book.

In general, it may be said that the Lupon's coined and retrieved archaic terms, as well as other terms taken from the Philippine vernaculars, show very little promise of ever attaining currency in Pilipino. Coining, revival of 'dead' words, and the arbitrary manner of getting words from the vernaculars, with disregard of already assimilated loan words, partake of the nature of language purism, itself an attitude which is not unnatural to any society that has long been dominated by a foreign power. For, essentially, a puristic attitude in language is merely one manifestation of freedom-hungry minds trying to 'authenticate' a language which they can call their own. To be sure, coining and the other 'puristic' techniques are legitimate modes of growth of any living language; nonetheless they should be applied with utmost restraint in Philippine context. Massive or indiscriminate adoption of coined, archaic, and vernacular terms may yet result in a waste of precious time and effort which otherwise could be channeled to more enhancing phases of language development.

The Philippines can possibly benefit from the experience of Malaysia in its efforts to intellectualize Bahasa Malaysia. During the fifties and sixties, when awareness for indigenous terms as against terms with signs of foreign markedness or 'unMalayness' was most prominently projected by the language planners and scholars, the Dewan Bahasa dan Pustaka, Malaysia's highest authority on language, adopted and published coined technical neologisms in massive quantities. Despite all these labors, only a small percentage of the terms ever entered the technical language currency, notwithstanding the government's official sanction (Asmah 1974:225-8).

6.1.5 Euphemism is still an important mode of language behavior in Filipino culture, especially on matters pertaining to sex. It will perhaps take some time before the taboo terms get into the medical lexicon as this would mean abrupt, radical changes in the present kind of culture that prevails among the Filipinos. But it is very likely that the time will come, as Pilipino gets intellectualized, when euphemisms will be reduced to a bare minimum, considering that 'precision' or explicitness of statement is one characteristic of an intellectualized language.

6.1.6 On the whole, the Maugnayin terms that gained acceptability were those that are current and recognizably indigenous to Tagalog, such as palamulaan (rootword mula; preferred over E-1 genealogy or S-2 henealohiya), binutil (rootword butil; preferred over E-1 granule or S-2 granilyo), pampamuo (rootword buo; preferred over E-1 coagulant or S-2 koegulante), among others.

Unusual or unfamiliar Maugnayin terms can also gain popularity under certain conditions; e.g., if terms fill a need in the language because of aversion to taboo words in sex, and also, if terms taken from other sources prove to be less 'attractive' or not aesthetically pleasing for adoption. In fact, the data strongly show that coining, if creatively and discreetly handled, can be very useful in this particular segment of language development. Perhaps coining can come in where euphemism fails. This is proven in respect to the term punlay coined by the Lupon.

Some M terms that show promise of eventually being accepted, to mention a few, are kaluban 'vagina', sihay 'cell', binhay 'germ', and kasanyuan 'isomorphism'. Most of the Lupon's coinages, however, will most likely be ultimately associated with the unpopular, not to say ridiculed, terms salipawpaw and salumpuwit.

6.1.7 Finally, the preference of the different types of respondents in each of the following groupings showed identical patterns: Group 1 - students, professors, and practitioners; Group 2 - medicine, biology, chemistry, physics, and mathematics; Group 3 - Tagalog and non-Tagalog. The only seeming deviation observed was the students' and the non-Tagalogs' tendency to favor the E-1 terms slightly more than the professors and the practitioners and the Tagalogs did; but such tendency is statistically nonsignificant.

The following chart which summarizes the rankings of the respondents according to the three types of grouping clearly shows this pattern (where the 'most preferred' option-types were assigned a weight of 1 and the 'least preferred' ones a weight of 5):

Groups	Option-Types				
	E-1	E-2	S-1	S-2	M
1. Stud, Prof, Prac	2	4	5	1	3
2. Bio, Che, Phy, Mat	2	4	5	1	3
3. Tag, NTg	2	4	5	1	3
Weight Total	6	12	15	3	9
Rank	2	4	5	1	3

The conclusion that may be derived from the above data is that a Pilipino scientific lexicon may be developed and expanded by generally observing the following possibilities, arranged in their order of acceptability: S-2 (respelled Spanish equivalent of the English term being borrowed), E-1 (English term without spelling alteration), M (Maugnayin way characterized by borrowing from the vernaculars, coining or deriving, and retrieval of archaic Tagalog words), E-2 (English term respelled to conform to the Abakada), and S-1 (Spanish term without spelling alteration).

Over and above all these possibilities, of course, is the most logical, appropriate, and accepted practice of using the Tagalog equivalent, if there is any, for the term being borrowed.

Based on the data, one general enrichment procedure can possibly be formulated such that the technical terms that will be adopted as a result of its application will most probably be acceptable to all the different sectors of intended users.

6.2 Recommendations

Two kinds of recommendations are presented in this section. The first is a proposed procedure in the development of a Pilipino scientific lexicon. The second is a set of suggestions for further study.

6.2.1 The following are the recommended lexical elaboration guidelines for Pilipino, especially as regards scientific terminologies, arranged in their order of priority:

6.2.1.1 Faced with an English technical term, use the equivalent term, if available, from Current Tagalog. Examples: recrudescence = binat; apoplexy = himatay; osteopathy = sakit (sa) butó.

6.2.1.2 If no Tagalog term is available, determine the Spanish equivalent of the English term and respell it to conform to the Abakada. Examples: microbe --> microbio = mikrobyo; carbide --> carburo = karburo; voltage --> voltaje = boltahe.

6.2.1.3 If neither of subsections 6.2.1.1 and 6.2.1.2 is feasible, adopt the English term. Here the borrower has two alternatives. First, borrow the English term as is, without spelling alteration. Examples: finite --> finite; radioisotope --> radioisotope. Second, borrow the English term and respell it to conform to the Abakada. Examples: axiom = aksyom; mathematician = matematisyan.

The first alternative is resorted to if the borrower believes that easy communication will be achieved, thus promoting dynamism in the language. The borrower, however, should be cautioned that this may lead to the loss of consistency in the spelling system of Pilipino, thus giving way to a 'creolized Pilipino'. Still, the possibility is not discounted that later generations will consider 'creolized Pilipino' as their own indigenous language, hence, to them it will be 'authentic'.

The second alternative is resorted to if the borrower wishes to preserve the consistency of the spelling system of Pilipino, although strict adherence to this alternative may lead to the loss of dynamism in the language, especially if the original form of the English term is no longer transparent from the resulting form.

6.2.1.4 If none of the preceding procedures is workable, any of the following, whichever is adaptable, may be resorted to:

6.2.1.4.1 Borrow from any of the vernaculars, preferably from the major ones;

6.2.1.4.2 Coin; or

6.2.1.4.3 Retrieve archaic Tagalog words.

Where coining is resorted to, acceptability of the coined term may be improved by observing the following: (1) at least one of the constituents must be a full Pilipino word base whose meaning matches that of the English term; the other constituent(s) must give an immediate clue to the meaning that is sought to be conveyed. Examples: gynecology = dalubsakit-babae; triangle = tatsulok; (2) euphony; i.e., if number (1) is not observed, the coined term should carry a combination of pleasing sounds or be visually aesthetic, suggestive of the intended meaning. Example: sperm = punlay; metamorphosis = banyuhay.

Subjectivity is admittedly very evident in the above guidelines. For example, who is to judge whether pagpaplano ng pamilya is more popular than pagbabalak-angkan; whether a respelled borrowed term, reydyoaysotop, for instance, is unusual or not; whether a coined term, punlay, for instance, is euphonious or not? Only a survey can more or less accurately tell which is which. But subjectivity notwithstanding, this researcher honestly believes that a set of lexical elaboration guidelines of this sort

has to be formulated or derived out of the questionnaire data for the following reasons:

(1) The survey technique is a tedious process, too impractical and uneconomical to be always resorted to merely to ascertain which are the most preferred terms, which are not unusual, or which are considered euphonious;

(2) A person who engages in the task of lexical elaboration is expected to have had enough exposure to the language to be able to make a reasonable approximation as to which terms are current or popular and which are not, whether a certain form is visually aesthetic or unusual, or whether a coined term is euphonious or not.

Regarding 'euphony' which is admittedly an elusive term, it is likely that a certain coinage may sound euphonious to a person who has the 'feel' of the nuances of Pilipino and its base, Tagalog, but the same term may not be euphonious to another person who is a non-native speaker of Tagalog and knows very little of the language because euphony to him is conditioned by his own vernacular;

(3) A person who uses the above guidelines may err in his judgment as to which of the available terms is more popular, but he will not take or adopt the current unpopular step of deliberately coining or reviving 'dead' words and disregarding the more acceptable Tagalog or borrowed Spanish or English terms. This is so because he is made ever aware of the order of priority of the sources of lexical elaboration possibilities which can further be simplified into a kind of formula as follows:

	Source 1	>	Source 2	>	Source 3
Eng —> Tech Term	Current Tag		Spa (+respelled)		Ver, Coined, Arch
			Eng (±respelled)		

As mentioned in Chapter 1, the term 'Current Tagalog' in the present study carries a rather restricted meaning as it refers only to words which are inherently indigenous. Spanish and English words, whether or not they are already part of the Tagalog language currency, have been given separate labels for the purposes of this study. The term medisina, for example, is actually part of the Current Tagalog lexicon but it nevertheless had to be classified as Spanish respelled (S-2) to distinguish it from the indigenous Tagalog term panggagamot.

Current Tagalog is assigned as the first source for lexical elaboration not simply because it is first in the overall preference ranking, but also because Tagalog, as the basis of Pilipino, should logically and legitimately be the principal source of needed technical vocabulary.

In 'Source 2', Spanish is written above English to indicate that where it is equally feasible to borrow from Spanish and from English, the Spanish term may be given priority. If a choice presents itself, for example, between chemist and kimiko, the latter word may be given preference.

The '+respelled' enclosed in parentheses immediately after 'Spa' means that all borrowed Spanish terms shall be respelled to conform to the Abakada. On the other hand, the '±respelled' written after 'Eng' means that English terms may be borrowed with or without spelling alterations. The borrower may respell the borrowed technical term to conform to the Abakada, especially if the original form will still be transparent in the resulting form.

The brackets in 'Source 3' indicate that any of the three enclosed sources may be chosen, depending on which is comparatively more adaptable.

The arrowhead sign (>) may be read 'If not feasible, go to next Source'.

Finally, the Philippine vernaculars as possible sources of terms have had to be shunted to 'Source 3' in spite of the provision in C. A. 184 to 'use as a source principally the Philippine tongues' and the provision in the 1973 Constitution regarding the 'development and formal adoption of a common national language to be known as Filipino' because that position is what the questionnaire data indicate, notwithstanding the fact that half of the respondents were non-Tagalogs. Perhaps the above-mentioned statutory and Constitutional provisions may be applicable in a situation where a foreign language, especially that of a former colonial master, does not occupy a premier status in the country. Furthermore, it is perhaps in the enrichment of the nontechnical vocabulary of Pilipino that words from the Philippine vernaculars can naturally come in. For a look at the language of advanced countries shows that the lexicon for ordinary discourse of communication, whether oral or written, is vastly different from the lexicon for technical or scientific information - denigratingly called jargon - which is dictated by new discoveries, new processes, new creations.

6.2.2 The following are some suggestions for further studies to be made:

Fishman (1974:23) points out that the area of concentration in the present popular awareness on language planning is now in conjunction with lexical elaboration as evidenced by studies conducted or being conducted by language academies or other official and semi-official agencies. Language planning bodies have already gone past the stages of creation, selection, a[illegible]vision of writing systems and the 'codification of langue models'.

[illegible]ever, as is true in other aspects of language planning research, F[illegible]serves that process oriented and theoretically guided research, part[illegible]rly as related to the differential success of planned neologisms among various target populations, is almost entirely lacking. The present study is admittedly a very modest beginning of the kind that Fishman

suggests. However, it may serve as a springboard for future studies, such as the following:

6.2.2.1 A study that will probe into the reasons why the various target populations accept or reject certain neologisms. Note that the present study merely ascertained which lexical forms are preferred and which are not. The reasons for 'liking' or 'not liking' were merely inferred from the questionnaire data.

One possible reaction that may perhaps be anticipated is 'foreign markedness' of the 'rejected' terms and 'indigenousness' of the 'accepted' ones, or the reverse.

The result of such a study would undoubtedly be of immense value to language planners and scholars who are engaged particularly in lexical elaboration.

6.2.2.2 A study that will accept or reject the hypothesis that some English terms accepted orally are rejected in written form; that there is presently evolving a brand of Oral Pilipino which is lexically different from its written form. It has always been generally accepted that the written form of a language is but a representation of its oral form. However, in the case of Pilipino, it seems that there will be some 'lexical replacements' by the speaker himself the moment his oral speech is shown to him in written form.

Such a study would make some language scholars realize that what they have been describing all along and claiming to be THE Pilipino language is only the oral aspect of it.

6.2.2.3 A study that will focus on the formatives (affixes and combining forms) of English technical terms to find out if there is a trend, or possibly a pattern, in the process of assimilating them into Pilipino. This aspect of borrowing has already been informally initiated in this study, focusing only on some terminal formatives. There appears to be a need to formally conduct a study on this aspect of language development to facilitate the intellectualization of Pilipino.

It is common knowledge that the English scientific lexicon is heavily interlarded with borrowings from Greek and Latin. Reyes (1977:6), in fact, posits that about 'three-fourths' of its scientific terminology is of Greek and Latin derivation. This phenomenon is understandable because of the genetic relationship of American English with Indo-European languages, the influence of the more progressive countries of Europe upon America during the early times, and the emphasis, until lately, on classical studies in Greek and Latin in American schools.

And since science and technology in the Philippines have their moorings on science and technology from the United States, it seems likewise natural for the Filipinos to resort to massive borrowings from English in the development of a Pilipino scientific lexicon. In this process of borrowing, the terminologies that were borrowed by English from

Greek and Latin for use as scientific terms are in turn being loaned to Pilipino.

If the Greek and Latin formatives underwent phonological changes, as any English dictionary will show, to conform to the English phonological system, it is also reasonable to assume that this phenomenon will occur when the same formatives are in turn loaned to Pilipino.

Identification of the trend or pattern that occurs in the borrowing of English formatives may yet lead to their standardization — a result which may prove to be a prolific source in the hands of the linguistically creative Filipinos.

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APPENDIX A - QUESTIONNAIRES

Name _____ Date _____
(Optional)
Permanent Address _____

Degree(s) Obtained _____

Present Position _____

Place of Work _____

Predominant Language Used In the Home _____

First Language Learned _____

Other Languages Spoken Other than Your First Language and English (Local & Foreign) _____

Language(s) Understood (Reading Ability Only) _____

Age (Check Appropriate Blank):

Below 30___; 30-39___; 40-49___; 50-59___; 60 or above ___

- -

Dear Sir/Madam:

We know you are a very busy person, you being a professional. Our very urgent need, however, has forced us to seek your help.

We are conducting a study on how we can enrich the technical lexicon of Pilipino for purposes of its intellectualization. Below are some representative terms which we picked out from the many terminology in your area of specialization.

Kindly encircle the letter of the term which you think should be the most appropriate form to be used. Please choose only one. In case you prefer another form which is not included in the options, kindly write it down on the appropriate blank.

We assure you that your reaction to this questionnaire will help us a great deal in our research.

THANK YOU,

✓MEDICINE
__BIOLOGY
__CHEMISTRY
__PHYSICS
__MATHEMATICS

Alfonso O. Santiago
Graduate School
Philippine Normal College

Name (Optional) _____ Date _____

Permanent Address _____

Course or Degree Being Pursued _____

Year (First, Second, Third, Fourth, etc.) _____

School _____

Predominant Language Used In the Home _____

Other Languages Spoken Other Than Your First Language and English (Local & Foreign) _____

Language(s) Understood (Reading Ability Only) _____

First Language Learned _____

Age (Check Appropriate Blank):

Below 20___; 20 - 29___; 30 - 39___; 40 - above ___

- -

Dear Student:

We know you are a very busy person, you being a student. Our very urgent need, however, has forced us to seek your help.

We are conducting a study on how we can enrich the technical lexicon of Pilipino for purposes of its intellectualization. Below are some representative terms which we picked out from the many terminology in your area of specialization.

Kindly choose the term which you think should be the most appropriate form to be used. Please choose only one for each number. In case you prefer another form which is not included in the options, kindly write it down on the appropriate blank.

We assure you that your reaction to this questionnaire will help us a great deal in our research.

THANK YOU,

✓MEDICINE
__BIOLOGY
__CHEMISTRY
__PHYSICS
__MATHEMATICS

Alfonso O. Santiago
Graduate School
Philippine Normal College

QUESTIONNAIRE # 1-A (MEDICINE)

Directions: Please encircle the letter of the word you prefer. In case you prefer another form which is not included among the options, kindly write it down on the appropriate blank.

1. medicine - the science and art of diagnosing, treating, curing, and preventing diseases.

a.	medicine	d.	medisina
b.	medisin	e.	panggagamot
c.	medicina	f.	_____

2. gynecologist - a specialist in female diseases.

a.	gaynekolodyist	d.	dalubsakit-babae
b.	ginecologo	e.	gynecologist
c.	hinekologo	f.	_____

3. surgeon - a medical specialist performing surgery.

a.	cirujano	d.	maninistis
b.	siruhano	e.	sardyon
c.	surgeon	f.	_____

4. hysterectomy - surgical removal of whole or part of the womb.

a.	isterektomya	d.	histerektomi
b.	hysterectomy	e.	histerectomia
c.	alis-bahay-bata	f.	_____

5. appendicitis - inflammation of the vermiform appendix.

a.	maga-apendiks	d.	apendisaytis
b.	apendisitis	e.	apendicitis
c.	appendicitis	f.	_____

6. etiology - study of the causes of diseases.

a.	etiology	d.	mula-sakit
b.	etyolodyi	e.	etyolohiya
c.	etiologia	f.	_____

7. recrudescence - reappearance of symptoms of a disease.

a.	rekrudesens	d.	rekrudesensya
b.	recrudescencia	e.	recrudescence
c.	binat	f.	_____

8. apoplexy - sudden loss of consciousness due to hemorrhage into brain or spinal cord.

a.	apoplexy	d.	apoplehiya
b.	apopleksi	e.	himatay
c.	apoplejia	f.	_____

9. cerebral hemorrhage - heavy bleeding in the brain due to a vein rupture.

a.	emorahiya serebral	d.	hemorragia cerebral
b.	cerebral hemorrhage	e.	pagdugo-utak
c.	serebral hemoreda	f.	_____

10. cardiograph - apparatus for making a graph of heart cycle.

a.	larawan-pintig	d.	kardyograpo
b.	kardyograp	e.	cardiograph
c.	cardiografo	f.	_____

11. antipyretic - anything that reduces fever.

a.	antipyretic	d.	antipiretico
b.	antipayretik	e.	antipiretiko
c.	laban-lagnat	f.	_____

12. paratyphoid - similar to typhoid.

a.	parataypoyd	d.	paratipoydiya
b.	mala-tipus	e.	paratyphoid
c.	paratifoidea	f.	_____

13. cephalalgia - headache.

a.	cefalalgia	d.	sepalaldya
b.	sepalalhiya	e.	sakit (ng) ulo
c.	cephalalgia	f.	_____

14. osteopathy - any bone disease.

a.	osteyopatiya	d.	osteyopati
b.	osteopathy	e.	osteopatia
c.	sakit-butó	f.	_____

15. family planning - the regulation, by birth control methods, of the number of children that a woman will have.

a.	pagbabalak-angkan	d.	planificacion de familia
b.	family planning	e.	planipikasyon de pamilya
c.	pamili planing	f.	_____

16. contraceptive - a devise used to prevent fertilization of the human ovum.

a.	contraceptive	d.	kontraseptibo
b.	kontraseptib	e.	pangontra sa pagbubuntis
c.	contraceptivo	f.	_____

17. penis - the male organ of sexual intercourse.

a.	penis	d.	titi
b.	pene	e.	kabahagi
c.	tunod	f.	_____

18. sperm - the male generative fluid; semen.

a.	esperma	d.	sperm
b.	punlay	e.	isperm
c.	tamod	f.	_____

19. vagina - the canal leading from the vulva to the uterus.

a.	vagina	d.	bahina
b.	kaluban	e.	butas
c.	badyayna	f.	_____
		g.	kiki

20. vasectomy - the surgical removal of all or part of the vas deferens.

a.	pagpapatali	d.	vasectomia
b.	vasectomy	e.	basektomya
c.	basektomi	f.	_____

* * * *

QUESTIONNAIRE # 1-B (MEDICINE)

Directions: Please underline your preference. In case you prefer another form which is not included among the options, kindly write it down on the appropriate blank.

1. Ang (MEDICINE, MEDISIN, MEDICINA, MEDISINA, PANGGAGAMOT, _____) ay isang sangay ng karunungan hinggil sa pagsusuri, pagbibigay-lunas, pagpapagaling o pagpigil sa maaaring dumating na sakit o karamdaman upang mapangalagaan ang kalusugan ng tao.

2. Ang panlahat na tawag sa isang taong lisensyado upang manggamot ay doktor o manggagamot. Ang isang doktor na nagpakadalubhasa sa sakit ng mga babae ay tinatawag na (GAYNEKOLODYIST, GINECOLOGO, HINEKOLOGO, DALUBSAKIT-BABAE, GYNECOLOGIST, _____).

3. Ang mga doktor naman na nagpakadalubhasa sa pag-opera o pagtistis ay tinatawag na (CIRUJANO, SIRUHANO, SURGEON, MANINISTIS, SARDYON, _____).

4. Ang isang halimbawa ng operasyon o pagtistis ay ang pag-aalis ng bahay-bata ng isang babae. Ang operasyong ito ay tinatawag na (ISTEREKTOMYA, HYSTERECTOMY, ALIS-BAHAY-BATA, HISTEREKTOMI, HISTERECTOMIA, _____).

5. Ang isa pang halimbawa ng operasyon ay ang pag-aalis ng namamagang 'appendix.' Ang pamamaga ng 'appendix' ay tinatawag na (MAGA-APENDIKS, APENDISITIS, APPENDICITIS, APENDISAYTIS, APENDICITIS, _____).

6. Maingat ang doktor sa pagsusuri sa maysakit. Inaalam niya, halimbawa, kung ano ang sanhi/pinagmulan o (ETIOLOGY, ETYOLODYI, ETIOLOGIA, MULA-SAKIT, ETYOLOHIYA, _____) ng karamdaman ng maysakit bago niya ito simulang gamutin.

7. Ang muling paglitaw ng sintomas ng isang sakit na tinatawag na (REKRUDESENS, RECRUDESCENCIA, BINAT, REKRUDESENSYA, RECRUDESCENCE, _____) ay nakatutulong din sa pag-alam ng doktor sa sakit ng isang tao.

8. Sari-sari ang nagiging sakit ng tao. May taong bigla na lamang mawawalan ng malay at mangingisay. Marami ang dahilan ng pagkawala ng malay ng isang tao. Kung minsan, ito ay dahil sa may bara o nahaharangan ang isang ugat sa kanyang utak, kaya't hindi makadaloy nang maayos ang dugo. Ang ganitong pagkawala ng malay ay tinatawag na (APOPLEJIA, APOPLEHIYA, APOPLEXY, APOPLEKSI, HIMATAY, _____).

9. Kung minsan naman ay hindi lamang nahaharangan kundi nalalagot o sumasabog ang ugat na siyang nagiging sanhi ng pagkalat ng dugo sa utak. Ang pangyayaring ito'y tinatawag na (EMORAHIYA SEREBRAL, CEREBRAL

HEMORRHAGE, SEREBRAL HEMOREDS, HEMORRAGIA CEREBRAL, PAGDUGO-UTAK, _____).

10. Kung minsan pa rin ay karamdaman naman sa puso ang nagiging dahilan ng pagkawala ng malay ng isang tao. Kapag ang puso ng isang tao ay may diprensya, ang pintig nito ay hindi nagiging maayos, kaya't hindi rin nagiging maayos ang pagdaloy ng dugo sa kanyang mga ugat. Ang isang aparato o instrumentong ginagamit ng mga doktor na dalubhasa sa puso ay ang tinatawag na (LARAWAN-PINTIG, KARDYOGRAP, CARDIOGRAFO, KARDYOGRAPO, CARDIOGRAPH, _____).

11. Ang isa pang sakit na karaniwang-karaniwan sa tao ay ang lagnat. May mga gamot na pampababa ng lagnat ng isang tao. Ang mga gamot na ito na maaaring tableta o likido ay tinatawag na (ANTIPYRETIC, ANTIPAYRETIK, LABAN-LAGNAT, ANTIPIRETICO, ANTIPIRETIKO, _____).

12. May mga sakit na ang mga sintomas ay maipagkakamali sa 'typhoid', 'tifoideo', o tipus. Ang ganitong sakit ay tinatawag na (PARATAYPOYD, MALA-TIPUS, PARATIFIOIDEA, PARATIPOYDIYA, PARATYPHOID, _____).

13. Ang isa pang karamdaman na itinuturing na karaniwang-karaniwan ay ang (CEFALALGIA, SEPALALHIYA, CEPHALALGIA, SEPALALDYA, SAKIT NG ULO, _____). Ngunit kapag nagiging malimit ang pagsakit ng ulo ng isang tao, kailangang kumonsulta na sa doktor sapagkat baka ito ay sintomas na ng ibang malubhang sakit.

14. Ang anumang sakit na nauukol sa butó ng tao ay tinatawag na (OSTEYOPATIYA, OSTEOPATHY, SAKIT-BUTÓ, OSTEYOPATI, OSTEOPATIA, _____). May mga doktor na sa ganitong uri ng sakit nagpakadalubhasa.

15. Parami nang parami ang tao sa Pilipinas, kaya't kailangan ang (PAGBABALAK-ANGKAN, FAMILY PLANNING, PAMILI PLANING, PLANIFICACION DE FAMILIA, PLANIPIKASYON DE PAMILYA, _____).

16. Maraming magagawang paraan ang mag-asawa upang hindi lubhang dumami ang kanilang mga anak. Halimbawa ay ang paggamit ng (CONTRACEPTIVE, KONTRASEPTIB, CONTRACEPTIVO, KONTRASEPTIBO, PANGONTRA SA PAGBUBUNTIS, _____).

17. Ang isang halimbawa nito ay ang 'condom'. Ito'y isang manipis na supot na yari sa goma. Isinusuot ito ng lalaki sa kanyang (PENIS, PENE, TUNOD, TITI, KABAHAGI, _____) bago makipagtalik.

18. Sa sandali ng pagtatalik, ang (ESPERMA, PUNLAY, TAMOD, SPERM, ISPERM, _____) na lumalabas sa lalaki ay naiipon sa 'condom'.

19. Kaya't hindi nakakatuloy sa (VAGINA, KALUBAN, BADYAYNA, BAHINA, BUTAS, KIKI, _____) ng babae.

20. Ang lalaki ay maaari ring (MAGPATALI, MAGPAVASECTOMY, MAGPABASEKTOMI, MAGPAVASECTOMIA, MAGPABASEKTOMYA, _____). Maaari rin namang ang babae ang (MAGPALIGATE, MAGPALAYGEYT, MAGPALIGAR, MAGPATALI, _____).

* * * *

QUESTIONNAIRE # 2-A (BIOLOGY)

Directions: Please encircle the letter of the word you prefer. In case you prefer another form which is not included among the options, kindly write it down on the appropriate blank.

1. biology - the science of life and living things.

a.	biology	d.	biyolohiya
b.	bayolodyi	e.	haynayan
c.	biologia	f.	_____

2. biologist - a person who is expert in biology.

a.	bayolodyist	d.	biologist
b.	biologo	e.	haynayanon
c.	biyologo	f.	_____

3. anatomy - structure or study of structure of organism.

a.	anatomia	d.	anatomy
b.	anatomya	e.	anatomi
c.	katwanan	f.	_____

4. biological - of or connected with biology.

a.	biyolohiko	d.	bayolodyikal
b.	haynayin/haynayanin	e.	biologico
c.	biological	f.	_____

5. genealogy - science or study of family descent.

a.	palamulaan	d.	genealogia
b.	genealogy	e.	henealohiya
c.	dyenealodyi	f.	_____

6. cell - small cavity; mass of protoplasm containing a nucleus.

a.	cell	d.	selula
b.	sel	e.	sihay
c.	celula	f.	_____

7. nucleus - the central mass of protoplasm in plant and animal cells necessary for growth, reproduction, etc.

a.	nukleus	d.	butod
b.	nucleo	e.	nucleus
c.	nukleo	f.	_____

8. chromosome - microscopic, rod-shaped body that contains the genes or hereditary determiners.

a.	cromosoma	d.	chromosome
b.	kromosoma	e.	kromosom
c.	kulaylawas	f.	_____

9. tissue - group of similar cells that perform a particular function.

a.	tehido	d.	tissue
b.	tejido	e.	tisyu
c.	sihayan	f.	_____

10. microscopic - visible only by using the microscope.

a.	miksipatin	d.	microscopico
b.	microscopic	e.	mikroskopiko
c.	maykroskopik	f.	_____

11. microscope - an instrument for making very small objects look larger.

a.	mikroskopyo	d.	maykroskop
b.	miksipat	e.	microscopio
c.	microscope	f.	_____

12. microorganism - microscopic organism.

a.	miktataghay	d.	microorganismo
b.	microorganism	e.	mikroorganismo
c.	maykroorganism	f.	_____

13. microbe - animate one-celled form of life.

a.	microbe	d.	mikrobyo
b.	maykrob	e.	mikhay
c.	microbio	f.	_____

14. germ - microorganism that usually causes disease.

a.	dyerm	d.	binhay
b.	germen	e.	germ
c.	hermen	f.	_____

15. inorganic - not pertaining to living organisms.

a.	inorganico	d.	inorganic
b.	inorganiko	e.	inorganik
c.	ditaghayin	f.	_____

16. metamorphize - to change form or structure (ex.: insects)

a.	metamorposyar	d.	metamorpays
b.	magbanyuhay	e.	metamorfosear
c.	metamorphize	f.	_____

17. granule - minute, grain-like mass in a cell.

a.	granule	d.	granilyo
b.	granyul	e.	binutil
c.	granillo	f.	_____

18. embryo - the young of any organism in an early stage of development.

a.	bilig	d.	embrion
b.	embryo	e.	embryon
c.	embreyo	f.	_____

19. carnivorous - flesh eating.

a.	carnivorous	d.	karniboro
b.	karniborus	e.	laman-kainin
c.	carnivoro	f.	_____

20. aquarium - a glass-sided tank for keeping live water animals and plants.

a.	akwaryum	d.	isdaan
b.	acuario	e.	aquarium
c.	akwaryo	f.	_____

* * * *

QUESTIONNAIRE # 2-B (BIOLOGY)

Directions: Please underline your preference. In case you prefer another form which is not included among the options, kindly write it down on the appropriate blank.

1. Ang (BIOLOGY, BAYOLODYI, BIOLOGIA, BIYOLOHIYA, HAYNAYAN [buhay + hanayan], _____) ay isang sangay ng karunungan hinggil sa pinagmulan, kasaysayan, katangiang pisikal, proseso ng buhay, atb. ng tao, hayop, at halaman o anumang bagay na may buhay.

2. Ang isang taong nagpakadalubhasa sa larangang ito ay tinatawag na (BAYOLODYIST, BIOLOGO, BIYOLOGO, BIOLOGIST, HAYNAYANON [-non is a Visayan suffix denoting expert], _____).

3. Siya ay eksperto o dalubhasa sa pagsusuri ng (ANATOMIA, ANATOMYA, KATWANAN [katawan + -an], ANATOMY, ANATOMI, _____) o ng panloob at panlabas na kaanyuan at pagkakabuo ng mga bagay na may buhay.

4. Maingat din niyang pinag-aaralan ang lahat ng salik (factor) na (BIYOLOHIKO, HAYNAYIN, BIOLOGICAL, BAYOLODYIKAL, BIOLOGICO, _____) ng anumang bagay na may buhay.

5. Ang (PALAMULAAN, GENEALOGY, DYENEALODYI, GENEALOGIA, HENEALOHIYA, _____) ay isang agham na nauukol sa pag-aaral sa pinagmulan ng mga mag-anak o mga angkan.

6. Lahat ng halaman at hayop ay binubuo ng mga (CELL, SEL, CELULA, SELULA, SIHAY [silid + maybuhay], _____) o ng napakaliliit na masa ng protoplasma.

7. Sa ubod ng bawat 'cell' ay naroon ang (NUKLEUS, NUCLEO, NUKLEO, BUTOD, NUCLEUS, _____) na kailangan sa reproduksyon at pagtubo o paglaki.

8. Sa 'nucleus' ay naroon naman ang tinatawag na (CROMOSOMA, KROMOSOMA, KULAYLAWAS [lawas is a Visayan term meaning body], CHROMOSOME, KROMOSOM, _____) na nagtataglay ng 'genes' na ang gampanin ay ilipat sa magiging supling ang mga katangian ng pinagmulang halaman o hayop.

9. Ang grupo o pangkat ng magkakatulad na 'cells' na may magkakatulad na gampanin ay tinatawag na (TEHIDO, TEJIDO, SIHAYAN [sihay + -an], TISSUE, TISYU, _____).

10. May mga bagay na dahil sa kaliitan ay nakikita lamang sa pamamagitan ng mikroskopyo. Dahil sa kaliitan, ang mga ito ay tinatawag na (MIKSIPATIN, MICROSCOPIC, MAYKROSKOPIK, MICROSCOPICO, MIKROSKOPIKO, _____).

11. Ang isang organismo na dahil sa kaliitan ay makikita lamang sa pamamagitan ng paggamit ng (MIKROSKOPYO, MIKSIPAT, MICROSCOPE, MAYKROSKOP, MICROSCOPIO, _____)

12. ay tinatawag na (MIKTATAGHAY, MICROORGANISM, MAYKROORGANISM, MICROORGANISMO, MIKROORGANISMO, _____).

13. Ang (MICROBE, MAYKROB, MICROBIO, MIKROBYO, MIKHAY, MICROBE, _____) ay halimbawa ng napakaliit na anyo ng buhay. Sa katunayan ay binubuo lamang ito ng isang 'cell'.

14. Ang (DYERM, GERMEN, HERMEN, BINHAY, GERM, _____) ay isa pang halimbawa ng 'microorganism'. Ito'y karaniwan nang siyang pinagmumulan ng sakit.

15. Ang isang bagay ay (INORGANICO, INORGANIKO, DITAGHAYIN, INORGANIC, INORGANIK, _____) kapag ito'y walang buhay o di nagtataglay ng mga sangkap na matatagpuan lamang sa mga bagay na may buhay.

16. Ang isang hayop ay (NAGMEMETAMORPOSYAR, NAGBABANYUHAY, NAGMEMETAMORPHIZE, NAGMEMETAMORPAYS, NAGMEMETAMORFOSEAR, _____) kapag ito ay nag-iiba ng anyo. Halimbawa nito ay ang uod na nagiging isang paruparo.

17. Sa loob ng bawat 'cell' ay may matatagpuang malabutil na masa na tinatawag na (GRANULE, GRANYUL, GRANILLO, GRANILYO, BINUTIL, _____). Ito'y pagkaing kailangan ng 'cell' upang patuloy na mabuhay.

18. Ang panimulang pagtubo ng butó ng isang halaman o kaya'y ang panimulang pagkabuo ng isang buhay sa sinapupunan ng isang ina ay tinatawag na (BILIG, EMBRYO, EMBREYO, EMBRION, EMBRYON, _____).

19. Ang mga hayop na kumakain ng kanilang kapwa hayop ay tinatawag na (CARNIVOROUS, KARNIBORUS, CARNIVORO, KARNIBORO, LAMAN-KAININ, _____).

20. Ang (AKWARYUM, ACUARIO, AKWARYO, ISDAAN, AQUARIUM, _____) ay isang tangkeng may tubig na karaniwang ang mga gilid ay salamin. Ito ay pinaglalagyan ng mga hayop at halamang nabubuhay sa tubig.

* * * *

QUESTIONNAIRE # 3-A (CHEMISTRY)

Directions: Please encircle the letter of the word you prefer. In case you prefer another form which is not included among the options, kindly write it down on the appropriate blank.

1. chemistry - science that treats of the molecular and atomic composition, decomposition, and transformation of matter.

a.	chemistry	d.	kimika
b.	kemistri	e.	kapnayan
c.	quimica	f.	_____

2. substance - matter of a particular kind or chemical composition.

a.	sabstans	d.	bagay
b.	substancia	e.	subetance
c.	subetansya	f.	_____

3. chemist - a person who is expert in chemistry.

a.	quimico	d.	chemist
b.	kimiko	e.	kemist
c.	kapnayanon	f.	_____

4. amperage - the strength of an electric current, measured in amperes.

a.	ampirahe	d.	ampireyds
b.	kaampiran	e.	amperaje
c.	amperage	f.	_____

5. carbide - compound of an element, usually a metal, with carbon.

a.	karbad	d.	carburo
b.	carbide	e.	karburo
c.	karbayd	f.	_____

6. chemical compound

a.	chemical compound	d.	kompuwesto kimiko
b.	kemikal kompawnd	e.	sangkapang kemikal
c.	compuesto quimico	f.	_____

7. chlorate - a salt of chloric acid.

a.	kloreyt	d.	klorat
b.	clorato	e.	chlorate
c.	klorato	f.	_____

8. chloric acid - chlorine-containing compound that can react with a base to form a salt.

a. acido clorico	d. chloric acid
b. asido kloriko	e. klorik asid
c. asido klorat	f. _____

9. coagulant - a substance that brings about coagulation.

a. koagulante	d. koagyulant
b. pampamuo	e. coagulante
c. coagulant	f. _____

10. colloid - a solid, liquid, or gaseous substance made up of very small, insoluble, nondiffusable particles.

a. koloyde	d. koloyd
b. maladigkit	e. coloide
c. colloid	f. _____

11. crystalline - having the character or structure of a crystal.

a. bubugin	d. cristalino
b. crystalline	e. kristalino
c. kristalin	f. _____

12. dioxide - compound having two oxygen atoms to one of another element.

a. dioxide	d. bioksido
b. dayoksayd	e. daluksad
c. bioxido	f. _____

13. monoxide - an oxide with one atom of oxygen in each molecule

a. monoxide	d. sanuksad
b. monoksayd	e. monoksido
c. monoxido	f. _____

14. ebullition - a boiling or bubbling up.

a. ebyulisyon	d. pagkukumulo
b. ebullicion	e. ebullition
c. ebulisyon	f. _____

15. efflorescence - state of being powdery or dry due to loss of water of crystallization.

a. efflorescencia	d. efflorescence
b. eploresensya	e. eploresens
c. halintubig	f. _____

16. metallurgy - study and methods of using metals.

a. balahakan	d. metalurgia
b. metallurgy	e. metalurhiya
c. metalurdyi	f. _____

17. isomorphism - two or more chemical compounds having the same constituent elements in the same proportion by weight but differing in physical or chemical properties.

a. isomorpismo	d. aysomorpism
b. kasanyuan	e. isomorfismo
c. isomorphism	f. _____

18. radioisotope - radioactive form of chemical such as radioactive cobalt.

a. radyoaysotop	d. dagilapkahasik
b. radioisotopo	e. radioisotope
c. radyoisotopo	f. _____

19. viscosity - state of being sticky or gummy.

a. viscosidad	d. viscosity
b. biskosidad	e. biskositi
c. lapuyot	f. _____

20. precipitate - a deposit separated from a suspension or solution by precipitation.

a. presipitado	d. presipiteyt
b. himuo	e. precipitado
c. precipitate	f. _____

* * * *

QUESTIONNAIRE # 3-B (CHEMISTRY)

Directions: Please underline your preference. In case you prefer another form which is not included among the options, kindly write it down on the appropriate blank.

1. Ang (CHEMISTRY, KEMISTRI, QUIMICA, KIMIKA, KAPNAYAN [sangkap + hanayan], _____) ay ang sangay ng karunungan hinggil sa pag-aaral sa mga kakanyahan at kayariang kemikal, reaksyon at gamit ng isang

2. (SABSTANS, SUBSTANCIA, SUBSTANSYA, BAGAY, SUBSTANCE, _____).

3. Ang isang taong nagpakadalubhasa sa 'chemistry' ay tinatawag na (QUIMICO, KIMIKO, KAPNAYANON [-non is a Visayan suffix denoting expert], CHEMIST, KEMIST, _____).

4. (AMPIRAHE, KAAMPIRAN, AMPERAGE, AMPIREYDS, AMPERAJE, _____) ang tawag sa lakas ng daloy ng koryente. Bagama't ang katawagang ito'y higit na karaniwan sa larangan ng elektrisidad, ito'y katawagang masasabing kailangan ding maunawaan ng sinumang nagpapakadalubhasa sa 'chemistry'.

5. (KARBAD, CARBIDE, KARBAYD, CARBURO, KARBURO, _____) ang tawag sa

6. (CHEMICAL COMPOUND, KEMIKAL KOMPAWND, COMPUESTO QUIMICO, KOMPUWESTO KIMIKO, SANGKAPANG KEMIKAL, _____) na karaniwa'y metal na may halong karbon.

7. (KLOREYT, CLORATO, KLORATO, KLORAT, CHLORATE, _____) ang katawagang ginagamit upang tumukoy sa solusyon na binubua ng

8. (ACIDO CLORICO, ASIDO KLORIKO, ASIDO KLORAT, CHLORIC ACID, KLORIK ASID, _____).

9. Ang anumang panimpla na ginagamit upang lumapot o mamuo ang likido ay tinatawag na (KOAGULANTE, PAMPAMUO, COAGULANT, KOAGYULANT, COAGULANTE, _____).

10. Ang (KOLOYDE, MALADIGKIT, COLLOID, KOLOYD, COLOIDE, _____) ay maaaring solido, likido, o gas na binubuo ng napakaliliit, di-natutunaw, at di-kumakalat na bagay na nananatiling di-natitinag sa midyum na katatagpuan nito.

11. Ang (BUBUGIN, CRYSTALLINE, KRISTALIN, CRISTALINO, KRISTALINO, _____) ay may katangian o kabuuang tulad ng kristal o bubog -- malinaw at nasasalamin (transparent).

12. (DIOXIDE, DAYOKSAYD, BIOXIDO, BIOKSIDO, DALUKSAD [dalawa + uksad], _____) ang tawag sa isang 'compound' na nagtataglay ng dalawang atomo ng oksiheno sa bawat mokekulo.

13. Sa kabilang dako, ang (MONOXIDE, MONOKSAYD, MONOXIDO, SANUKSAD [isang + oksad], MONOKSIDO, _____) ay nagtataglay lamang ng isang atomo ng oksiheno sa bawat molekulo.

14. Ang malakas na pagkulo o pagsubo ng likido dahil halimbawa sa init ay tinatawag na (EBYULISYON, EBULLICION, EBULISYON, PAGKUKUMULO, EBULLITION, _____).

15. May sandali sa proseso ng kristalisasyon na ang bagay ay natutuyo o nagiging malapulbos dahil sa pagkawala ng likido. Ito ay tinatawag na (EFFLORESCENCIA, EPLORESENSYA, HALINTUBIG [halin is a Visayan term synonymous to alis], EFFLORESCENCE, EPLORESENS, _____).

16. Ang agham o karunungan hinggil sa kung papaanong ang metal ay nagagawa at nagagamit ay tinatawag na (BALAHAKAN, METALLURGY, METALURDYI, METALURGIA, METALURHIYA, _____).

17. Ang (ISOMORPISMO, KASANYUAN [kaisa + anyo + -an], ISOMORPHISM, AYSOMORPISM, ISOMORFISMO, _____) ay tumutukoy sa dalawa o higit pang 'chemical compounds' na may magkatulad na proporsyon sa timbang ngunit nagkakaiba sa mga kakanyahan o katangiang pisikal at kemikal.

18. Ang (RADYOAYSOTOP, RADIOISOTOPO, RADYOISOTOPO, DAGILAPKAHASIK, RADIOISOTOPE, _____) ay isang anyong kemikal na 'radioactive'.

19. (VISCOSIDAD, BISKOSIDAD, LAPUYOT, VISCOSITY, BISKOSITI, _____) ang tawag sa sandaling ang isang likidong tinitimpla, halimbawa, ay nagiging malapot o malagkit.

20. Ang isang bagay na naihiwalay sa isang solusyon sa pamamagitan ng 'precipitation' ay tinatawag na (PRESIPITADO, HIMUO, PRECIPITATE, PRESIPITEYT, PRECIPITADO, _____).

* * * *

QUESTIONNAIRE # 4-A (PHYSICS)

Directions: Please encircle the letter of the word you prefer. In case you prefer another form which is not included among the options, kindly write it down on the appropriate blank.

1. physics - science dealing with properties, changes, interactions, etc. of matter and energy.

   a. physics
   b. pisiks
   c. fisica
   d. pisika
   e. liknayan
   f. _____

2. physicist - a person who is a specialist in physics.

   a. pisisist
   b. fisico
   c. pisiko
   d. liknayanon
   e. physicist
   f. _____

3. acoustics - branch of physics dealing with sound.

   a. acustica
   b. akustika
   c. tunugan
   d. acoustics
   e. akustiks
   f. _____

4. dynamics - branch of physics that deals with the motion of material bodies and the phenomena of the action of forces on bodies.

   a. dinamika
   b. isigan
   c. dynamics
   d. daynamiks
   e. dinamica
   f. _____

5. optics - branch of physics dealing with the nature and properties of light and vision.

   a. dalubsugaan
   b. optics
   c. optiks
   d. optica
   e. optika
   f. _____

6. thermodynamics - branch of physics dealing with the reversible transformation of heat into other forms of energy.

   a. thermodynamics
   b. termodaynamiks
   c. termodinamica
   d. termodinamika
   e. initsigan
   f. _____

7. atmosphere - a unit of pressure equal to 14.69 lbs. per sq. in.

a. atmospir	d. kahanginan
b. atmosfera	e. atmosphere
c. atmospera	f. _____

8. atmospheric pressure - the pressure due to the weight of the earth's atmosphere.

a. presion atmosferica	d. atmospheric pressure
b. presyon atmosperika	e. atmosperik presyur
c. kahanginang diin	f. _____

9. centrifugal force - the force tending to pull a thing outward when it is rotating rapidly around a center.

a. puwersa sentripuga	d. sentripyugal pors
b. basisig	e. fuerza centrifuga
c. centrifugal force	f. _____

10. electrolyte - any substance which in solution or in a liquid form is capable of conducting an electric current.

a. dagilusaw	d. electrolito
b. electrolyte	e. elektrolito
c. elektrolayt	f. _____

11. malleability - capability of being hammered, pounded, or pressed into various shapes without breaking (ex.: metals)

a. malleability	d. malyabilidad
b. malyabiliti	e. pagkapukpukin
c. maleabilidad	f. _____

12. molecule - smallest particle of an element or compound that consists of two or more different atoms.

a. molecule	d. molekula
b. molekyul	e. mulatil
c. molecula	f. _____

13. phosphorescence - property of a substance of giving off a lingering emission of light after exposure to radiant energy.

a. pospowanag	d. fosforescencia
b. phosphorescence	e. posporesensya
c. posporesens	f. _____

14. refraction - the bending of a ray or wave of light, heat, or sound as it passes obliquely from one medium to another.

a.	refraction	d.	repraksyón (Spa. accent)
b.	repráksyon(Eng. accent)	e.	saliko
c.	refraccion	f.	_____

15. sentient heat - heat that can be perceived by the senses.

a.	kalor latente	d.	sensyent hit
b.	init na lantad	e.	calor latente
c.	sentient heat	f.	_____

16. storage battery - a battery of electro-chemical cells for generating electric current.

a.	tinggalitab	d.	bateria electrica
b.	storage battery	e.	baterya elektrika
c.	istoreyds bateri	f.	_____

17. thermoelectricity - electricity produced by heating the junction between two dissimilar conductors.

a.	thermoelectricity	d.	termoelektrisidad
b.	termoelektrisiti	e.	initdagitban
c.	termoelectricidad	f.	_____

18. vaporization - the process of changing liquid into vapor.

a.	baporisasyon	d.	beyporisesyon
b.	sasingaw	e.	vaporizacion
c.	vaporization	f.	_____

19. velocity - quickness or rapidity of motion or action; rate of motion in a particular direction in relation to time.

a.	tulin	d.	velocidad
b.	velocity	e.	belosidad
c.	belositi	f.	_____

20. voltage - electromotive force, or difference in electrical potential, expressed in volts.

a.	voltage	d.	boltahe
b.	bolteyds	e.	kabolthan
c.	voltaje	f.	_____

* * * *

QUESTIONNAIRE # 4-B (PHYSICS)

Directions: Please underline your preference. In case you prefer another form which is not included among the options, kindly write it down on the appropriate blank.

1. Ang (PHYSICS, PISIKS, FISICA, PISIKA, LIKNAYAN [likas + hanayan], _____) ay isang sangay ng karunungan hinggil sa mga kakanyahan, pagbabago, interaksyon, atb. ng bagay at ng lakas.

2. Ang isang taong nagpakadalusbhasa sa 'physics' ay tinatawag na (PISISIST, FISICO, PISIKO, LIKNAYANON [-non is a Visayan suffix denoting expert], PHYSICIST, _____).

Maraming sangay ang 'physics'. Ang ilan ay ang mga sumusunod:

3. (ACUSTICA, AKUSTIKA, TUNUGAN, ACOUSTICS, AKUSTIKS, _____) -- nauukol sa tunog.

4. (DINAMIKA, ISIGAN [isig is an old Tagalog term], DYNAMICS, DAYNAMIKS, DINAMICA, _____) -- nauukol sa galaw ng mga bagay at ang nagiging epekto ng puwersa sa mga ito.

5. (DALUBSUGAAN [dalubhasa + suga (Visayan term for light) + -an], OPTICS, OPTIKS, OPTICA, OPTIKA, _____) -- nauukol sa mga katangian at kakanyahan ng liwanag at paningin.

6. (THERMODYNAMICS, TERMODAYNAMIKS, TERMODINAMICA, TERMODINAMIKA, INITSIGAN, _____) -- nauukol sa transpormasyon ng init upang magawang ibang anyo ng enerhiya o lakas.

7. Ang presyon na likha ng bigat ng (ATMOSPIR, ATMOSFERA, ATMOSPERA, KAHANGINAN, ATMOSPHERE, _____) ay tinatawag na

8. (PRESION ATMOSFERICA, PRESYON ATMOSPERIKA, KAHANGINANG DIIN, ATMOSPHERIC PRESSURE, ATMOSPERIK PRESYUR, _____).

9. Ang puwersang humihila nang palabas kapag ang isang bagay ay gumagalaw nang mabilis palnog sa isang sentro ay tinatawag na (PUWERSA SENTRIPUGA, BASISIG [palabas + isig], CENTRIFUGAL FORCE, SENTRIPUGAL PORS, FUERZA CENTRIFUGA, _____).

10. Ang anumang solusyon o likido na maaaring daluyan o daanan ng koryente ay tinatawag na (DAGILUSAW [dagitab + lusaw], ELECTROLYTE, ELEKTROLAYT, ELECTROLITO, ELEKTROLITO, _____).

11. May mga bagay na maaaring hubugin sa iba't ibang anyo nang hindi nasisira. Ang kapabilidad na ito ng bagay ay tinatawag na (MALLEABILITY, MALYABILITI, MALEABILIDAD, MALYABILIDAD, PAGKAPUKPUKIN, _____).

12. Ang pinakamaliit na bahagi ng isang elemento o sangkapan na binubuo ng dalawa o higit pang magkakaibang atomo ay tinatawag na (MOLEKULA, MULATIL [mulaan + butil], MOLECULE, MOLEKYUL, MOLECULA, _____).

13. Kapag ang isang bakal ay ating pinagbaga at pagkatapos ay inialis natin sa apoy, ito'y nananatili pa ring nagbabaga ng mga ilang sandali at nagbibigay din ng liwanag. And kakanyahang ito ng bakal ay tinatawag na (POSPOWANAG [posporus + liwanag], PHOSPHORESCENCE, POSPORESENS, FOSFORESCENCIA, POSPORESENSYA, _____).

14. Likas na tuwid ang silahis ng liwanag. Ngunit ito'y nasisiliko kapag tumatama' sa tubig. Ang pangyayaring ito'y tinatawag na (REFRACTION, REPRĀKSYON, REFRACCION, REPRAKSYŌN, SALIKO, _____).

15. Ang init na ating nadarama kahit hindi tayo gumamit ng anumang instrumento ay tinatawag na (KALOR LATENTE, INIT NA LANTAD, SENTIENT HEAT, SENSYENT HIT, CALOR LATENTE, _____).

16. Ang (TINGGALITAB [tinggalan + dagitab], STORAGE BATTERY, ISTOREYDS BATERI, BATERIA ELECTRICA, BATERYA ELEKTRIKA, _____) ay may mga selulang elektro-kemikal upang makapagtinggal at makalikha ng koryente.

17. Ang koryenteng nalilikha sa pamamagitan ng pagpapainit sa sugpong ng dalawang magkaibang daluyan ay tinatawag na (THERMOELECTRICITY, TERMOILIKTRISITI, TERMOELECTRICIDAD, TERMOELEKTRISIDAD, INITDAGITBAN [dagitab + -an], _____).

18. Ang likido ay napagbabagong anyo at nagagawang singaw. Ang prosesong ito ay tinatawag na (BAPORISASYON, SASINGAW, VAPORIZATION, BEYPORISESYON, VAPORIZACION, _____).

19. Ang bilis ng galaw ng isang bagay patungo sa isang direksyon ay tinatawag na (TULIN, VELOCITY, BELOSITI, VELOCIDAD, BELOSIDAD, _____).

20. Ginagamit na katawagan sa pagsukat ng lakas ng koryente ang (VOLTAGE, BOLTEYDS, VOLTAJE, BOLTAHE, KABOLTHAN, _____).

* * * *

QUESTIONNAIRE # 5-A (MATHEMATICS)

Directions: Please encircle the letter of the word you prefer. In case you prefer another form which is not included among the options, kindly write it down on the appropriate blank.

1. mathematics - science that deals with quantities, magnitudes, and forms, and their relationships.

   a. mathematics
   b. matematiks
   c. matematica
   d. matematika
   e. sipnayan
   f. _____

2. mathematician - an expert or specialist in mathematics.

   a. matematisyan
   b. matematico
   c. matematiko
   d. mathematician
   e. sipnayanon
   f. _____

3. algebra - mathematical system used to generalize certain arithmetical operations by permitting letters or other symbols to stand for numbers.

   a. algebrá (Spa. accent & pronun.)
   b. alhebra
   c. panandaan
   d. álgebra (Eng. accent & pronun.)
   e. aldyebra
   f. _____

4. geometry - branch of mathematics that deals with points, lines, surfaces, and solids.

   a. heometriya
   b. sukgisan
   c. geometry
   d. dyometri
   e. geometria
   f. _____

5. arithmetic - the science or art of computing by positive, real numbers.

   a. bilnuran
   b. arithmetic
   c. aritmetik
   d. aritmetica
   e. aritmetika
   f. _____

6. calculus - a method of calculation using a special system of notation in symbols.

   a. calculus
   b. kalkyulus
   c. calculo
   d. kalkulo
   e. tayahan
   f. _____

7. axiom - a statement that needs no proof because its truth is evident.

a. axioma
b. aksyoma
c. axiom
d. aksyom
e. batlain
f. _____

8. theorem - a proposition embodying something to be proven.

a. tiyorema
b. hunain
c. theorem
d. tiyorem
e. teorema
f. _____

9. calculator - a machine for doing rapid computations.

a. pantaya
b. calculator
c. kalkyuleytor
d. calculador
e. kalkulador
f. _____

10. commutative - of or pertaining to an operation in which the order of the elements does not affect the result.

a. komyuteytib
b. conmutativo
c. konmutatibo
d. palitin
e. commutative
f. _____

11. triangle - a geometrical figure having three angles and three sides.

a. triangulo
b. triyanggulo
c. tatsulok
d. tatsiha
e. triangle
f. trayanggel
g. _____

12. angle - the space made by two straight lines meeting in a point.

a. anggulo
b. sulok
c. siha
d. angle
e. enggel
f. _____

13. hypotenuse - the side of a right-angled triangle opposite the right angle.

a. tagway
b. hypotenuse
c. haypotenus
d. hipotenusa
e. iputenusa
f. _____

14. right angle - an angle of 90 degrees; angle made by the meeting of two straight lines perpendicular to each other.

a.	right angle	d.	anggulo rekto
b.	rayt enggel	e.	sihang tadlong
c.	angulo recto	f.	_____

15. acute angle - an angle of less than 90 degrees.

a.	akyut enggel	d.	sihang kipot
b.	anggulo obliko	e.	oblik enggel
c.	sihang talibas	f.	_____

16. oblique angle - any angle other than a right angle; acute or obtuse angle.

a.	angulo oblicuo	d.	oblique angle
b.	anggulo obliko	e.	oblik enggel
c.	sihang talibas	f.	_____

17. cosecant - ratio between the hypotenuse and the side opposite a given acute angle in a right triangle.

a.	kosekant	d.	cosecant
b.	cosecante	e.	kasekway
c.	kosekante	f.	_____

18. cosine - the ratio between the side adjacent to a given acute angle in a right triangle and the hypotenuse.

a.	coseno	d.	cosine
b.	koseno	e.	kosayn
c.	kasinway	f.	_____

19. infinite - lacking limits or bounds.

a.	di-hangganin	d.	infinito
b.	infinite	e.	impinito
c.	impinit	f.	_____

20. finite - capable of being reached, completed, or surpassed by counting; anything that has measurable limits.

a.	finite	d.	pinito
b.	paynayt	e.	hangganin
c.	finito	f.	_____

* * * *

QUESTIONNAIRE # 5-B (MATHEMATICS)

Directions: Please underline your preference. In case you prefer another form which is not included among the options, kindly write it down on the appropriate blank.

1. Ang (MATHEMATICS, MATEMATIKS, MATEMATICA, MATEMATIKA, SIPNAYAN [isip + hanayan], _____) ay isang sangay ng karunungan hinggil sa kantidad o dami, magnitud o laki, porma o anyo, at ang pag-alam sa mga katangian at pagkakaugnayan ng mga ito sa pamamagitan ng paggamit ng mga bilang at mga sagisag.

2. Ang isang taong nagpakadalubhasa sa 'mathematics' ay tinatawag na (MATEMATISYAN, MATEMATICO, MATEMATIKO, MATHEMATICIAN, SIPNAYANON [-non is a Visayan suffix denoting expert], _____).

Ang kilalang-kilalang mga sangay ng 'mathematics' ay ang mga sumusunod:

3. (ALGEBRA [Spa. accent & pronun.] ALHEBRA, PANANDAAN, ALGEBRA [Eng. accent & pronun.], ALDYEBRA, _____);

4. (HEOMETRIYA, SUKGISAN [sukat + hugis + -an], GEOMETRY, DYOMETRI, GEOMETRIA, _____);

5. (BILNURAN, ARITHMETIC, ARITMETIK, ARITHMETICA, ARITMETIKA, _____);

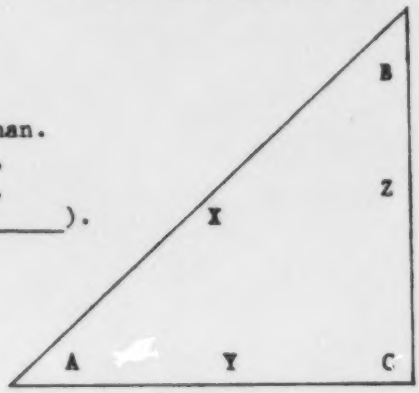
6. (CALCULUS, KALKYULUS, CALCULO, KALKULO, TAYAHAN, _____).

7. (AXIOMA, AKSYOMA, AXIOM, AKSYOM, BATLAIN [batayan + simulain], _____) ang tawag sa mga pahayag na hindi na kailangan pang patunayang totoo sapagkat lubhang kapani-paniwala. Halimbawa nito ay ang sinabi ni Euclid na "Ang dalawang bagay ay magkatulad kapag ang mga ito'y katulad ng isang bagay."

8. Sa kabilang dako naman, may mga pahayag na kailangang patunayang totoo sapagkat hindi paniniwalaan karaka-raka. Ang ganitong mga pahayag ay tinatawag namang (TIYOREMA, HUNAIN, THEOREM, TIYOREM, TEOREMA, _____).

9. Higit na nagiging mabilis ang ating pagsuma kapag tayo'y gumagamit ng (PANTAYA, CALCULATOR, KALKYULEYTOR, CALCULADOR, KALKULADOR, _____).

10. May mga sumahin na matatawag na (KOMYUTEYTIB, CONMUTATIVO, KONMUTATIBO, PALITIN, COMMUTATIVE, _____) sapagkat pagpalitin man ng pusisyon ang mga bilang ay hindi nakaaapekto sa resulta. Halimbawa: 2 x 3 = 6; 3 x 2 = 6.



11. Tingnan ang larawan sa kanan. Ito ay tinatawag na (TRIANGULO, TRIYANGGULO, TATSULOK, TATSIHA, TRIANGLE, TRAYANGGEL, _____).

12. Ito ay may tatlong panig o gilid. May tatlo rin itong (ANGGULO, SULOK, SIHA, ANGLE, ENGGEL, ANGULO, _____).

13. Ang gilid na pinakamahaba (may tandang X) ay tinatawag na (TAGWAY [matandang Tagalog], HYPOTENUSE, HAYPOTENUS, HIPOTENUSA, IPUTENUSA, _____).

14. Ang may tandang C ay tinatawag na (RIGHT ANGLE, RAYT ENGGEL, ANGULO RECTO, ANGGULO REKTO, SIHANG TADLONG, _____).

15. Ang may tandang A ay tinatawag na (AKYUT ENGGEL, ANGULO AGUDO, ANGGULO AGUDO, SIHANG KIPOT, ACUTE ANGLE, _____).

16. Maaari ring matawag na (ANGULO OBLICUO, ANGGULO OBLIKO, SIHANG TALIBAS, OBLIQUE ANGLE, OBLIK ENGGEL, _____) ang mga may tandang A at B.

17. Kung alam na ang sukat ng A, ang proporsyon ng X at ng Z ay tinatawag na (KOSEKANT, COSECANTE, KOSEKANTE, COSECANT, KASEKWAY, _____).

18. Samantala, ang proporsyon naman ng Y at ng X ay tinatawag na (COSENO, KOSENO, KASINWAY, COSINE, KOSAYN, _____).

19. Ang anumang bagay na walang hanggan o katapusan ang magiging pagbilang o pagsukat ay inuuring (DI-HANGGANIN, INFINITE, IMPINIT, INFINITO, IMPINITO, _____).

20. Samantala, anumang maaaring mabilang o masukat ay tinatawag na (FINITE, PAYNAYT, FINITO, PINITO, HANGGANIN, _____).

* * * *

APPENDIX B

RANKING OF THE ITEMS BY THE 60 RESPONDENTS

A. MEDICINE

	Items	Total	Rank	Percentage
1.	medicine (E-1)	5	3	8.33
	medisin (E-2)	2	5	3.33
	medicina (S-1)	4	4	6.67
	medisina (S-2)	30	1	50.00
	panggagamot (CT)	19	2	31.67
2.	gynecologist (E-1)	16	2	26.67
	gaynekolodyist (E-2)	7	4	11.67
	ginecologo (S-1)	4	5	6.67
	hinekologo (S-2)	12	3	20.00
	dalubsakit-babae (CT/CD?)	21	1	35.00
3.	surgeon (E-1)	9	2.5	15.00
	sardyon (E-2)	2	6	3.33
	cirujano (S-1)	4	5	6.67
	siruhano (S-2)	31	1	51.67
	maninistis (CT/AT?)	9	2.5	15.00
	mang-oopera (O)	5	4	8.33
4.	hysterectomy (E-1)	14	2	23.33
	histerektomi (E-2)	11	3	18.33
	histerectomia (S-1)	3	5.5	5.00
	isterektomya (S-2)	4	4	6.67
	alis-bahay-bata (CT)	25	1	41.67
	histerektomiya (O)	3	5.5	5.00

MED (continued)

	Items	Total	Rank	Percentage
5.	appendicitis (E-1)	8	2	13.33
	apendisaytis (E-2)	5	4	8.33
	apendicitis (S-1)	7	3	11.67
	apendisitis (S-2)	38	1	63.33
	maga-apendiks (CT/E-2?)	2	5	3.33
6.	etiology (E-1)	10	4	16.67
	etyolodyi (E-2)	3	6.5	5.00
	etiologia (S-1)	12	3	20.00
	etyolohiya (S-2)	13	2	21.67
	mula-sakit (CT)	14	1	23.33
	sanhi ng sakit (O)	4	5	6.67
	pinagmulan (O)	1		1.67
	aral-sakit (O)	3	6.5	5.00
7.	recrudescence (E-1)	10	2	16.67
	rekrudesens (E-2)	2	5	3.33
	recrudesensia (S-1)	1	6.5	1.67
	rekrudesensya (S-2)	6	3	10.00
	binat (CT)	35	1	58.33
	balik-sintomas (O)	5	4	8.33
	balik-sakit (O)	1		1.67
8.	apoplexy (E-1)	14	2	23.33
	apopleksi (E-2)	11	3	18.33
	apoplejia (S-1)	1	5	1.67

MED (continued)

	Items	Total	Rank	Percentage
	apoplehiya (S-2)	8	4	13.33
	himatay (CT)	25	1	41.67
	apoplexya (O)	1		1.67
9.	cerebral hemorrhage (E-1)	19	2	31.67
	serebral hemoreyds (E-2)	3	5	5.00
	hemorragia cerebral (S-1)	8	3.5	13.33
	emorahiya serebral (S-2)	8	3.5	13.33
	pagdugo-utak (CT)	21	1	35.00
	daloy dugo sa utak (O)	1		1.67
10.	cardiograph (E-1)	14	2	23.33
	kardyograp (E-2)	7	4	11.67
	cardiografo (S-1)	4	5	6.67
	kardyograpo (S-2)	23	1	38.33
	larawan-pintig (CT)	9	3	15.00
	kardiograf (O)	2		3.33
	sulat-puso (O)	1		1.67
11.	antipyretic (E-1)	10	2	16.67
	antipayretik (E-2)	4	4	6.67
	antipiretico (S-1)	2	5	3.33
	antipiretiko (S-2)	8	3	13.33
	kontra-lagnat (CT)	36	1	60.00
12.	paratyphoid (E-1)	13	2	21.67
	parataypoyd (E-2)	6	3	10.00

MED (continued)

	Items	Total	Rank	Percentage
	paratifoidea (S-1)	1	5	1.67
	paratipoydiya (S-2)	6	4	10.00
	malatipus (CT)	32	1	53.33
	paratayfoyd (O)	2		3.33
13.	cephalalgia (E-1)	9	2	15.00
	sepalaldya (E-2)	1	4.5	1.67
	cefalalgia (S-1)	1	4.5	1.67
	sepalalhiya (S-2)	5	3	8.33
	sakit-ulo (CT)	43	1	71.67
	sefalaldya (O)	1		1.67
14.	osteopathy (E-1)	10	2	16.67
	osteyopati (E-2)	2	5	3.33
	osteopatia (S-1)	7	3	11.67
	osteyopatiya (S-2)	5	4	8.33
	sakit-buto (CT)	34	1	56.67
	osteyopasya (O)	1		1.67
15.	family planning (E-1)	16	2	26.67
	pamili planing (E-2)	3	4	5.00
	planificacion de familia (S-1)	1	5.5	1.67
	planipikasyon de pamilya (S-2)	0	7	0.00
	pagbabalak-angkan (CT)	12	3	20.00
	pagpaplano ng pamilya (O)	27	1	45.00
	planong pamilya (O)	1	5.5	1.67

MED (continued)

	Items	Total	Rank	Percentage
16.	contraceptive (E-1)	13	3	21.67
	kontraseptib (E-2)	6	4	10.00
	contraceptivo (S-1)	2	5	3.33
	kontraseptibo (S-2)	11	2	18.33
	pangontra sa pagbubuntis (CT/S-2?)	25	1	41.67
	kontrabuntis (O)	1		1.67
	pangontra panganak (O)	1		1.67
	laban septibo (O)	1		1.67
17.	penis (E-1)	17	2	28.33
	pene (S-1)	0		0.00
	tumod (M)	2	5	3.00
	titi (Tab)	7	4	11.67
	kabahagi (Hup)	25	1	41.67
	ari ng lalaki (O)	8	3	13.33
	buto (O)	1		1.67
18.	sperm (E-1)	8	2.5	13.33
	isperm (E-2)	1	6	1.67
	esperma (S-1)	5	4.5	8.33
	punlay (M)	33	1	55.00
	t mod (Tab)	5	4.5	8.33
	semilya (O)	8	2.5	13.33

MED (continued)

	Items	Total	Rank	Percentage
19.	vagina (E-1)	16	2	26.67
	badyayna (E-2)	3	5.5	5.00
	bahina (S-2)	3	5.5	5.00
	kaluban (M)	13	3	21.67
	butas (CT)	18	1	30.00
	kiki (Tab)	4	4	6.67
	puke (O)	1		1.67
	pag-aari ng babae (O)	2		3.33
20.	vasectomy (E-1)	20	2	33.33
	basektomi (E-2)	10	3	16.67
	vasectomia (S-1)	2	4.5	3.33
	basektomya (S-2)	2	4.5	3.33
	pagpapatali (CT)	25	1	43.33

B. BIOLOGY

	Items	Total	Rank	Percentage
1.	biology (E-1)	14	3	23.33
	bayolodyi (E-2)	0	6	0.00
	biologia (S-1)	15	2	25.00
	biyolohiya (S-2)	21	1	35.00
	haynayan (M)	9	4	15.00
	buhaynayan (O)	1	5	1.67
2.	biologist (E-1)	19	1	31.67
	bayolodyist (E-2)	12	3	20.00
	biyologo (S-2)	14	2	23.33
	haynayanon (M)	6	4	10.00
	dalubhaynayan (O)	1		1.67
	biyolohista (O)	1		1.67
	bayolohista (O)	1		1.67
	haynayano (O)	1		1.67
	buhaynon (O)	1		1.67
3.	anatomy (E-1)	14	2	23.33
	anatomi (E-2)	2	5	3.33
	anatomia (S-1)	12	3	20.00
	anatomya (S-2)	20	1	33.33
	katwanan (M)	10	4	16.67
	anatomika (O)	1		1.67
	kabutawanan (O)	1		1.67

BIO (continued)

	Items	Total	Rank	Percentage
4.	biological (E-1)	19	1	31.67
	bayolodyikal (E-2)	10	3	16.67
	biologico (S-1)	4	5	6.67
	biyolohiko (S-2)	17	2	28.33
	haynayin (M)	8	4	13.33
	bayolohikal (O)	1		1.67
	hanayanan (O)	1		1.67
5.	genealogy (E-1)	12	2.5	20.00
	dyenealodyi (E-2)	3	5	5.00
	genealogia (S-1)	12	2.5	20.00
	henealohiya (S-2)	6	4	10.00
	palamulaan (M)	27	1	45.00
6.	cell (E-1)	20	1	33.33
	sel (E-2)	4	5	6.67
	celula (S-1)	5	4	8.33
	selula (S-2)	16	2	26.67
	sihay (M)	15	3	25.00
7.	nucleus (E-1)	14	2	23.33
	nukleus (E-2)	3	5	5.00
	nucleo (S-1)	9	3	15.00
	nukleo (S-2)	26	1	43.33
	butod (M)	7	4	11.67
	sihay siwa (O)	1		1.67

BIO (continued)

	Items	Total	Rank	Percentage
8.	chromosome (E-1)	14	2	23.33
	kromosom (E-2)	5	4.5	8.33
	cromosoma (S-1)	5	4.5	8.33
	kromosoma (S-2)	28	1	46.67
	kulaylawas (M)	7	3	11.67
	taglay tangi (O)	1		1.67
9.	tissue (E-1)	20	1	33.33
	tisyu (E-2)	17	2	28.33
	tejido (S-1)	2	5	3.33
	tehido (S-2)	6	4	10.00
	sihayan (M)	14	3	23.33
	buklod sihay (O)	1	6	1.67
10.	microscopic (E-1)	16	2	26.67
	maykroskopik (E-2)	6	3	10.00
	microscopico (S-1)	5	4	8.33
	mikroskopiko (S-2)	28	1	46.67
	miksipatin (M)	4	5	6.67
	sipathayin (O)	1	6	1.67
11.	microscope (E-1)	14	2	23.33
	maykroskop (E-2)	4	4	6.67
	microscopio (S-1)	9	3	15.00
	mikroskopyo (S-2)	30	1	50.00
	miksipat (M)	3	5	5.00

BIO (continued)

	Items	Total	Rank	Percentage
12.	microorganism (E-1)	17	2	28.33
	maykroorganism (E-2)	6	4	10.00
	microorganismo (S-1)	7	3	11.67
	mikroorganismo (S-2)	26	1	43.33
	miktataghay (M)	3	5	5.00
	sipathay (O)	1	6	1.67
13.	microbe (E-1)	10	2	16.67
	maykrob (E-2)	4	4	6.67
	microbio (S-1)	8	3	13.33
	mikrobyo (S-2)	35	1	58.33
	mikhay (M)	2	5	3.33
	payakhay (O)	1	6	1.67
14.	germ (E-1)	26	1	43.33
	dyerm (E-2)	10	3	16.67
	germen (S-1)	3	5	5.00
	hermen (S-2)	7	4	11.67
	binhay (M)	13	2	21.67
	sakitbinhay (O)	1	6	1.67
15.	inorganic (E-1)	18	2	30.00
	inorganik (E-2)	3	5	5.00
	inorganico (S-1)	5	4	8.33
	inorganiko (S-2)	27	1	45.00
	ditaghayin (M)	7	3	11.67

BIO (continued)

	Items	Total	Rank	Percentage
16.	nagmemetamorphize (E-1)	18	2	30.00
	nagmemetamorpays (E-2)	2	5	3.33
	nagmemetamorpowear (S-1)	3	4	5.00
	nagmemetamorpowyear (S-2)	6	3	10.00
	nagbabanyuhay (M)	31	1	51.67
17.	granule (E-1)	15	2.5	25.00
	granyul (E-2)	11	4	18.33
	granillo (S-1)	2	5	3.33
	granilyo (S-2)	15	2.5	25.00
	binutil (M)	17	1	28.33
18.	embryo (E-1)	25	1	41.67
	embreyo (E-2)	19	2	31.67
	embrion (S-1)	1	5.5	1.67
	embryon (S-2)	9	3	15.00
	bilig (M)	5	4	8.33
	sinapupunhay (O)	1	5.5	1.67
19.	carnivorous (E-1)	13	2	21.67
	karniborus (E-2)	5	4	8.33
	carnivoro (S-1)	3	5	5.00
	karniboro (S-2)	30	1	50.00
	laman-kainin (M)	9	3	15.00

BIO (continued)

	Items	Total	Rank	Percentage
20.	aquarium (E-1)	17	1	28.33
	akwaryum (E-2)	14	3	23.33
	acuario (S-1)	2	5	3.33
	akwaryo (S-2)	12	4	20.00
	isdaan (M)	15	2	25.00
C.	CHEMISTRY			
1.	chemistry (E-1)	14	2	23.33
	kemistri (E-2)	13	3	21.67
	quimica (S-1)	5	5	8.33
	kimika (S-2)	18	1	30.00
	kapnayan (M)	10	4	16.67
2.	substance (E-1)	16	3	26.67
	sabstans (E-2)	2	5	3.33
	substancia (S-1)	3	4	5.00
	substansya (S-2)	22	1	36.67
	bagay (M)	17	2	28.33
3.	chemist (E-1)	21	2	35.00
	kemist (E-2)	8	3	13.33
	quimico (S-1)	0	5	0.00
	kimiko (S-2)	23	1	38.33
	kapnayanon (M)	6	4	10.00
	kapnay (O)	1		1.67
	mangangapnay (O)	1		1.67

CHE (continued)

	Items	Total	Rank	Percentage
4.	amperage (E-1)	24	2	40.00
	ampireyds (E-2)	1	5	1.67
	amperaje (S-1)	3	4	5.00
	ampirahe (S-2)	26	1	43.33
	kaampiran (M)	6	3	10.00
5.	carbide (E-1)	17	2	28.33
	karbayd (E-2)	6	3	10.00
	carburo (S-1)	5	4	8.33
	karburo (S-2)	32	1	53.33
	karbad (M)	0	5	0.00
6.	chemical compound (E-1)	18	2	30.00
	kemikal kompawnd (E-2)	1	4.5	1.67
	compuesto quimico (S-1)	1	4.5	1.67
	kompuwesto kimiko (S-2)	3	3	5.00
	sangkapang kemikal (M)	36	1	60.00
	sangkap (O)	1	5	1.67
7.	chlorate (E-1)	26	1.5	43.33
	kloreyt (E-2)	6	3	10.00
	clorato (S-1)	1	4.5	1.67
	klorato (S-2)	26	1.5	43.33
	klorat (M)	1	4.5	1.67

CHE (continued)

	Items	Total	Rank	Percentage
8.	chloric acid (E-1)	22	2	36.67
	klorik asid (E-2)	5	3	8.33
	acido clorico (S-1)	2	5	3.33
	asido kloriko (S-2)	27	1	45.00
	asido klorat (M)	4	4	6.67
9.	coagulant (E-1)	19	2	31.67
	koagyulant (E-2)	6	4	10.00
	coagulante (S-1)	2	5	3.33
	koagulante (S-2)	8	3	13.33
	pampamuo (M)	24	1	40.00
	pampalapot (O)	1	6	1.67
10.	colloid (E-1)	27	1	45.00
	koloyd (E-2)	13	2	21.67
	coloide (S-1)	0	5	0.00
	koloyde (S-2)	10	3.5	16.67
	maladigkit (M)	10	3.5	16.67
11.	crystalline (E-1)	17	1	28.33
	kristalin (E-2)	16	2	26.67
	cristalino (S-1)	1	5	1.67
	kristalino (S-2)	15	3	25.00
	bubugin (M)	9	4	15.00
	malakristal (O)	1		1.67
	malakrystal (O)	1		1.67

CHE (continued)

	Items	Total	Rank	Percentage
12.	dioxide (E-1)	27	1	45.00
	dayoksayd (E-2)	5	4	8.33
	bioxido (S-1)	1	6	1.67
	bioksido (S-2)	13	2	21.67
	dalukšad (M)	11	3	18.33
	daloksayd (O)	3	5	5.00
13.	monoxide (E-1)	24	1	40.00
	monoksayd (E-2)	5	4	8.33
	monoxido (S-1)	2	5.5	3.33
	monoksido (S-2)	17	2	28.33
	šanukšad (M)	10	3	16.67
	šanoksayd (O)	2	5.5	3.33
14.	ebullition (E-1)	17	2.5	28.33
	ebyulisyon (E-2)	5	4	8.33
	ebullicion (S-1)	2	5	3.33
	ebulisyon (S-2)	18	1	30.00
	pagkukumulo (M)	17	2.5	28.33
	kumukulo (O)	1		1.67
15.	efflorescence (E-1)	22	1	36.67
	eploresens (E-2)	7	4	11.67
	efflorescencia (S-1)	4	5	6.67
	eploresensya (S-2)	14	2	23.33
	halintubig (M)	13	3	21.67

CHE (continued)

	Items	Total	Rank	Percentage
16.	metallurgy (E-1)	19	2	31.67
	metalurdyi (E-2)	4	5	6.67
	metalurgia (S-1)	5	4	8.33
	metalurhiya (S-2)	26	1	43.33
	balahakan (M)	6	3	10.00
17.	isomorphism (E-1)	22	1	36.67
	aysomorpism (E-2)	2	5.5	3.33
	isomorfismo (S-1)	3	4	5.00
	isomorpismo (S-2)	13	3	21.67
	kasanyuan (M)	17	2	28.33
	kaisanyuan (O)	2	5.5	3.33
	aysomorpismo (O)	1		1.67
18.	radioisotope (E-1)	26	1	43.33
	radyoaysotop (E-2)	7	3	11.67
	radioisotopo (S-1)	0	5	0.00
	radyoisotopo (S-2)	21	2	35.00
	dagilapkahasik (M)	6	4	10.00
19.	viscosity (E-1)	23	1	38.33
	biskositi (E-2)	4	4	6.67
	viscosidad (S-1)	2	5.5	3.33
	biskosidad (S-2)	17	2	28.33
	lapuyot (M)	11	3	18.33
	lapot (O)	1		1.67
	kalaputan (O)	2	5.5	3.33

CHE (continued)

Items	Total	Rank	Percentage
20. precipitate (E-1)	20	1	33.33
presipiteyt (E-2)	4	4	6.67
precipitado (S-1)	0	5	0.00
presipitado (S-2)	16	3	26.67
himuo (M)	18	2	30.00
namuo (O)	1		1.67
presipitato (O)	1		1.67
D. PHYSICS			
1. physics (E-1)	17	2	28.33
pisiks (E-2)	8	3	13.33
fisica (S-1)	1	5	1.67
pisika (S-2)	30	1	50.00
liknayan (M)	4	4	6.67
2. physicist (E-1)	18	2	30.00
pisisist (E-2)	10	3	16.67
fisico (S-1)	3	5	5.00
pisiko (S-2)	25	1	41.67
liknayanon (M)	4	4	6.67
3. acoustics (E-1)	14	2	23.33
akustiks (E-2)	7	3.5	11.67
acustica (S-1)	2	5	3.33
akustika (S-2)	29	1	48.33

PHY (continued)

	Items	Total	Rank	Percentage
	tunugan (M)	7	3.5	11.67
	akaustiks (O)	1		1.67
4.	dynamics (E-1)	17	2	28.33
	daynamiks (E-2)	13	3	21.67
	dinamica (S-1)	1	5	1.67
	dinamika (S-2)	26	1	43.33
	isigan (M)	3	4	5.00
5.	optics (E-1)	15	2	25.00
	optiks (E-2)	10	3	16.67
	optica (S-1)	4	4	6.67
	optika (S-2)	28	1	46.67
	dalubsugaan (M)	3	5	5.00
6.	thermodynamics (E-1)	18	2	30.00
	termodaynamiks (E-2)	9	3	15.00
	termodinamica (S-1)	2	5	3.33
	termodinamika (S-2)	25	1	41.67
	initsigan (M)	5	4	8.33
	termodinamics (O)	1		1.67
7.	atmosphere (E-1)	12	3	20.00
	atmospir (E-2)	8	4	13.33
	atmosfera (S-1)	1	5	1.67
	atmospera (S-2)	26	1	43.33
	kahanginan (M)	13	2	21.67

PHY (continued)

	Items	Total	Rank	Percentage
8.	atmospheric pressure (E-1)	17	2	28.33
	atmosperik presyur (E-2)	6	4	10.00
	presion atmosferica (S-1)	0		0.00
	presyon atmosperika (S-2)	24	1	40.00
	kahanginang diin (M)	12	3	20.00
	presyon atmospera (O)	1	5	1.67
9.	centrifugal force (E-1)	16	2	26.67
	sentripyugal pors (E-2)	6	3.5	10.00
	fuerza centrifuga (S-1)	4	5	6.67
	puwersa sentripuga (S-2)	27	1	45.00
	basisig (M)	6	3.5	10.00
	puersa sentripugal (O)	1		1.67
10.	electrolyte (E-1)	19	1.5	31.67
	elektrolayt (E-2)	15	3	25.00
	electrolito (S-1)	1	5	1.67
	elektrolito (S-2)	19	1.5	31.67
	dagilusaw (M)	6	4	10.00
11.	malleability (E-1)	19	2	31.67
	malyabiliti (E-2)	7	4	11.67
	maleabilidad (S-1)	3	5	5.00
	malyabilidad (S-2)	22	1	36.67
	pagkapukpukin (M)	9	3	15.00

PHY (continued)

	Items	Total	Rank	Percentage
12.	molecule (E-1)	17	2	28.33
	molekyul (E-2)	11	3	18.33
	molecula (S-1)	5	5	8.33
	molekula (S-2)	21	1	35.00
	mulatil (M)	6	4	10.00
13.	phosphorescence (E-1)	21	1.5	35.00
	posporesens (E-2)	11	3	18.33
	fosforescencia (S-1)	0	5	0.00
	posporesensya (S-2)	21	1.5	35.00
	pospowanag (M)	7	4	11.67
14.	refraction (E-1)	17	2	28.33
	repraksyon (E-2)	16	3	26.67
	refraccion (S-1)	0	5	0.00
	repraksyon (S-2)	22	1	36.67
	saliko (M)	5	4	8.33
15.	sentient heat (E-1)	16	2	26.67
	sensyent hit (E-2)	4	4	6.67
	calor latente (S-1)	0	5	0.00
	kalor latente (S-2)	10	3	16.67
	init na lantad (M)	29	1	48.33
	latent hit (O)	1		1.67
16.	storage battery (E-1)	18	2	30.00
	istoreyds bateri (E-2)	7	3	11.67

PHY (continued)

	Items	Total	Rank	Percentage
	bateria electrica (S-1)	2	5	3.33
	baterya elektrika (S-2)	27	1	45.00
17.	thermoelectricity (E-1)	19	2	31.67
	termoelektrisiti (E-2)	6	3	10.00
	termoelectricidad (S-1)	2	5	3.33
	termoelektrisidad (S-2)	28	1	46.67
	initdagitban (M)	5	4	8.33
18.	vaporization (E-1)	17	2	28.33
	beyporisesyon (E-2)	6	4	10.00
	vaporizacion (S-1)	0	5	0.00
	baporisasyon (S-2)	26	1	43.33
	sasingaw (M)	11	3	18.33
19.	velocity (E-1)	14	2	23.33
	belositi (E-2)	7	4	11.67
	velocidad (S-1)	2	5	3.33
	tulin (M)	27	1	45.00
	belosidad (S-2)	10	3	16.67
20.	voltage (E-1)	13	2	21.67
	bolteyds (E-2)	5	3.5	8.33
	voltaje (S-1)	5	3.5	8.33
	boltahe (S-2)	36	1	60.00
	kabolthan (M)	1	5	1.67

E. MATHEMATICS

Items	Total	Rank	Percentage
1. mathematics (E-1)	9	2	15.00
matematiks (E-2)	5	3	8.33
matematica (S-1)	0	5	0.00
matematika (S-2)	42	1	70.00
sipnayan (M)	4	4	6.67
2. mathematician (E-1)	14	2.5	23.33
matematisyan (E-2)	30	1	50.00
matematico (S-1)	1	4.5	1.67
matematiko (S-2)	14	2.5	23.33
sipnayanon (M)	1	4.5	1.67
3. algebra (E-1)	28	1	46.67
aldyebra (E-2)	13	2	21.67
algebra (S-1)	4	5	6.67
alhebra (S-2)	8	3	13.33
panandaan (M)	7	4	11.67
4. geometry (E-1)	19	1	31.67
dyometri (E-2)	9	4	15.00
geometria (S-1)	13	2	21.67
heometriya (S-2)	11	3	18.33
sukgisan (M)	6	5	10.00
geometrika (O)	1		1.67
heyometri (O)	1		1.67

MAT (continued)

Items	Total	Rank	Percentage
5. arithmetic (E-1)	17	2	28.33
aritmetik (E-2)	7	3	11.67
aritmetica (S-1)	1	5	1.67
aritmetika (S-2)	30	1	50.00
bilnuran (M)	5	4	8.33
6. calculus (E-1)	27	1	45.00
kalkyulus (E-2)	13	2	21.67
calculo (S-1)	0		0.00
kalkulo (S-2)	12	3	20.00
tayahan (M)	4	4.5	6.67
kalkulus (O)	4	4.5	6.67
7. axiom (E-1)	15	2	25.00
aksyom (E-2)	21	1	35.00
axioma (S-1)	5	5	8.33
aksyoma (S-2)	11	3	18.33
batlain (M)	8	4	13.33
8. theorem (E-1)	20	1	33.33
tiyorem (E-2)	18	2	30.00
teorema (S-1)	7	4	11.67
tiyorema (S-2)	9	3	15.00
humain (M)	6	5	10.00
9. calculator (E-1)	26	1	43.33
kalkyuleytor (E-2)	11	3	18.33

MAT (continued)

	Items	Total	Rank	Percentage
	calculador (S-1)	0		0.00
	kalkulador (S-2)	16	2	26.67
	pantaya (M)	6	4	10.00
	kalkuletor (O)	1	5	1.67
10.	commutative (E-1)	20	2	33.33
	komyuteytib (E-2)	7	3.5	11.67
	conmutativo (S-1)	2	5	3.33
	kommutatibo (S-2)	23	1	38.33
	palitin (M)	7	3.5	11.67
	komutatib (O)	1		1.67
11.	triangle (E-1)	12	2.5	20.00
	trayanggel (E-2)	2	5	3.33
	triangulo (S-1)	12	2.5	20.00
	triyanggulo (S-2)	11	4	18.33
	tatsulok (SWP/O)	23	1	38.33
	tatsiha (M)	0		0.00
12.	angle (E-1)	9	4	15.00
	enggel (E-2)	2	5	3.33
	angulo (S-1)	15	3	25.00
	anggulo (S-2)	17	1.5	28.33
	sulok (CT/O)	17	1.5	28.33
	siha (M)	0		0.00

MAT (continued)

	Items	Total	Rank	Percentage
13.	hypotenuse (E-1)	21	1	35.00
	haypotenus (E-2)	18	2	30.00
	hipotenusa (S-1)	11	3	18.33
	iputenusa (S-2)	3	5	5.00
	tagway (M)	6	4	10.00
	hipotenus (O)	1		1.67
14.	right angle (E-1)	20	1	33.33
	rayt enggel (E-2)	6	5	10.00
	angulo recto (S-1)	9	3	15.00
	anggulo rekto (S-2)	16	2	26.67
	sihang tadlong (M)	7	4	11.67
	rektong enggel (O)	1		1.67
	rait enggel (O)	1		1.67
15.	acute angle (E-1)	20	1	33.33
	akyut enggel (E-2)	9	4	15.00
	angulo agudo (S-1)	10	3	16.67
	anggulo agudo (S-2)	12	2	20.00
	sihang kipot (M)	8	5	13.33
	agudong enggel (O)	1		1.67
16.	oblique angle (E-1)	20	1	33.33
	oblik enggel (E-2)	9	3	15.00
	angulo oblicuo (S-1)	6	5	10.00
	sihang talibas (M)	7	4	11.67
	anggulo obliko (S-2)	17	2	28.33

MAT (continued)

	Items	Total	Rank	Percentage
	oblikong enggel (O)	1		1.67
17.	cosecant (E-1)	23	1	38.33
	kosekant (E-2)	19	2	31.67
	cosecante (S-1)	0		0.00
	kosekante (S-2)	9	3	15.00
	kasekway (M)	7	4	11.67
	ark sine (O)	1	5.5	1.67
	kasekan (O)	1	5.5	1.67
18.	cosine (E-1)	25	1	41.67
	kosayn (E-2)	18	2	31.00
	coseno (S-1)	1	5.5	1.67
	koseno (S-2)	8	3	13.33
	kasinway (M)	7	4	11.67
	kosain (O)	1	5.5	1.67
19.	infinite (E-1)	17	1.5	28.33
	impinit (E-2)	7	5	11.67
	infinito (S-1)	11	3	18.33
	impinito (S-2)	8	4	13.33
	di-hangganin (M)	17	1.5	28.33
20.	finite (E-1)	18	1	30.00
	paynayt (E-2)	3	5	5.00
	finito (S-1)	8	4	13.33
	pinito (S-2)	13	3	21.67
	hangganin (M)	17	2	28.33
	pinit (O)	1		1.67

APPENDIX C

SUMMARY PER ITEM OF BORROWING STYLES FROM ENGLISH AND SPANISH PREFERRED BY STUDENTS, PROFESSORS, AND PRACTITIONERS IN THE FIVE SCIENCE DISCIPLINES

Item No.	Coded Options	Disciplines					Total	Percentage
		MED	BIO	CHE	PHY	MAT		
1	E-1	5	14	22	17	9	67	22.33
	E-2	2	0	13	8	5	28	9.33
	S-1	4	15	5	1	0	25	8.33
	S-2	30	21	10	30	42	133	44.33
2	E-1	16	19	16	18	14	83	27.67
	E-2	7	12	2	10	30	61	20.33
	S-1	4	4	3	3	1	15	5.00
	S-2	12	14	22	25	14	87	29.00
3	E-1	9	14	21	14	28	89	28.67
	E-2	2	2	8	7	13	32	10.67
	S-1	4	12	0	2	4	22	7.33
	S-2	31	20	23	29	8	111	37.00

Formula: $\text{Percentage} = \frac{\text{Total no. of responses}}{5 \times 60} \times 100$

where 5 is the total number of disciplines and 60 is the total number of respondents per discipline.

Item No.	Coded Options	Disciplines					Total	Percentage
		MED	BIO	CHE	PHY	MAT		
4	E-1	14	19	24	17	19	93	31.00
	E-2	11	10	1	13	9	44	14.67
	S-1	3	4	3	1	13	24	8.00
	S-2	4	17	26	26	11	84	28.00
5	E-1	8	12	17	15	17	69	23.00
	E-2	5	3	6	10	7	31	10.33
	S-1	7	12	5	4	1	29	9.67
	S-2	38	6	32	28	30	134	44.67
6	E-1	10	20	18	18	27	93	31.00
	E-2	3	4	1	9	13	30	10.00
	S-1	12	5	1	2	0	20	6.67
	S-2	13	16	3	25	12	69	23.00
7	E-1	10	14	26	12	15	77	25.67
	E-2	2	3	6	8	21	40	13.33
	S-1	1	9	1	1	5	17	5.67
	S-2	6	26	26	26	11	95	31.67
8	E-1	14	14	22	17	20	87	29.00
	E-2	11	5	5	6	18	45	15.00
	S-1	1	5	2	0	7	15	5.00
	S-2	8	28	27	24	9	96	32.00

Item No.	Coded Options	Disciplines					Total	Percentage
		MED	BIO	CHE	PHY	MAT		
9	E-1	19	20	19	16	26	100	33.33
	E-2	3	17	6	6	11	43	12.33
	S-1	8	2	2	4	0	16	5.33
	S-2	8	6	8	27	16	65	21.67
10	E-1	14	16	27	19	20	96	32.00
	E-2	7	6	13	15	7	48	16.00
	S-1	4	5	0	1	2	12	4.00
	S-2	23	28	10	19	23	103	34.33
11	E-1	10	14	17	19	12	72	24.00
	E-2	4	4	16	7	2	33	11.00
	S-1	2	9	1	3	12	27	9.00
	S-2	8	30	15	22	11	86	28.67
12	E-1	13	17	27	17	9	83	27.67
	E-2	6	6	5	11	2	30	10.00
	S-1	1	7	1	5	15	29	9.67
	S-2	6	26	13	21	17	83	27.67
13	E-1	9	10	24	21	21	85	28.33
	E-2	1	4	5	11	18	39	13.00
	S-1	1	8	2	0	11	22	7.33
	S-2	5	35	17	21	3	81	27.00

Item No.	Coded Options	Disciplines					Total	Percentage
		MED	BIO	CHE	PHY	MAT		
14	E-1	10	26	17	17	20	90	30.00
	E-2	2	10	5	16	6	39	13.00
	S-1	7	3	2	0	9	21	7.00
	S-2	5	7	18	22	16	68	22.67
15	E-1	16	18	22	16	20	92	30.67
	E-2	3	3	7	4	9	26	8.67
	S-1	1	5	4	0	10	20	6.67
	S-2	0	27	14	10	12	63	21.00
16	E-1	13	18	19	18	20	88	29.33
	E-2	6	2	4	7	9	28	9.33
	S-1	2	3	5	2	6	18	6.00
	S-2	11	6	26	27	17	87	29.00
17	E-1	*	15	22	19	23	79	32.92
	E-2	*	11	2	6	19	38	15.83
	S-1	*	2	3	2	0	7	2.91
	S-2	*	15	13	28	9	65	27.08
18	E-1	*	25	26	17	25	93	38.75
	E-2	*	19	7	6	18	50	20.83
	S-1	*	1	0	0	1	2	0.83
	S-2	*	9	21	26	8	64	26.67

*Nos. 17, 18, and 19 are excluded as options for the four styles are incomplete because of the inclusion of 'euphemistic' and 'taboo' terms.

Item No.	Coded Options	Disciplines					Total	Percentage
		MED	BIO	CHE	PHY	MAT		
19	E-1	*	13	23	14	17	67	27.92
	E-2	*	5	4	7	7	23	9.58
	S-1	*	3	2	2	11	18	7.50
	S-2	*	30	17	10	8	65	27.08
20	E-1	20	17	20	13	18	88	29.33
	E-2	10	14	4	5	3	36	12.00
	S-1	2	2	0	5	8	17	5.67
	S-2	2	12	16	36	13	79	26.33

APPENDIX D-1

SUMMARY OF PREFERENCES BY STUDENTS IN EACH OF THE 20 ITEMS IN THE FOUR DISCIPLINES (BIO, CHE, PHY, MAT)*

Options	Students (80)				Totals	Percentage
	BIO (20)	CHE (20)	PHY (20)	MAT (20)		
E-1	188	148	118	136	590	36.88
E-2	29	29	61	83	202	12.63
S-1	27	12	13	52	104	6.50
S-2	93	106	142	69	410	25.63
M	61	98	66	57	282	17.63
O	2	7	0	3	12	0.75

*MED excluded; indigenous terms used, not 'Maugnayin'.

Code:

E-1 English with no change in spelling.

E-2 English, respelled to conform to the Abakada.

S-1 Spanish with no change in spelling.

S-2 Spanish, respelled to conform to the Abakada.

M 'Maugnayin' term, Lupon sa Agham, NSDB.

O Other preferences by respondents.

APPENDIX D-2

SUMMARY OF PREFERENCES BY PROFESSORS IN EACH OF THE 20 ITEMS IN THE FOUR DISCIPLINES (BIO, CHE, PHY, MAT)*

Options	Professors (80)				Totals	Percentage
	BIO (20)	CHE (20)	PHY (20)	MAT (20)		
E-1	94	112	97	155	458	28.62
E-2	47	51	53	63	214	13.38
S-1	54	14	18	26	112	7.00
S-2	122	125	170	80	497	31.06
M	72	90	55	73	290	18.12
O	11	8	7	3	29	1.81

*MED excluded; indigenous terms used, not 'Maugnayin'.

Code:

E-1 English with no change in spelling.

E-2 English, respelled to conform to the Abakada.

S-1 Spanish with no change in spelling.

S-2 Spanish, respelled to conform to the Abakada.

M 'Maugnayin' term, Lupon sa Agham, NSDB.

O Other preferences by respondents.

APPENDIX D-3

SUMMARY OF PREFERENCES BY PRACTITIONERS IN EACH OF THE 20 ITEMS IN THE FOUR DISCIPLINES (BIO, CHE, PHY, MAT)*

Options	Practitioners (80)				Totals	Percentage
	BIO (20)	CHE (20)	PHY (20)	MAT (20)		
E-1	53	169	119	89	430	26.88
E-2	64	40	58	81	243	15.19
S-1	35	16	7	38	96	6.00
S-2	164	126	170	141	601	37.56
M	79	44	46	40	209	13.06
O	5	5	0	11	21	1.31

*MED excluded; indigenous terms used, not 'Maugnayin'.

Code:

E-1 English with no change in spelling.

E-2 English, respelled to conform to the Abakada.

S-1 Spanish with no change in spelling.

S-2 Spanish, respelled to conform to the Abakada.

M 'Maugnayin' term, Lupon sa Agham, NSDB.

O Other preferences by respondents.

APPENDIX E

SUMMARY OF PREFERENCES OF THE TAGALOG AND NON-TAGALOG RESPONDENTS IN EACH OF THE 20 ITEMS IN THE FIVE SCIENCE DISCIPLINES

Disciplines	Preferences (1-20)												Total
	E-1		E-2		S-1		S-2		M/I		O		
	Tag	Ntg	Tag	Ntg	Tag	Ntg	Tag	Ntg	Tag	Ntg	Tag	Ntg	
1 Med	3	2	2	0	2	2	15	15	8	11	0	0	60
Bio	8	6	0	0	3	12	13	8	5	4	1	0	60
Che	10	12	7	6	1	4	6	4	6	4	0	0	60
Phy	5	12	6	2	0	1	17	13	2	2	0	0	60
Mat	4	5	3	2	0	0	21	21	2	2	0	0	60
2 Med	12	4	6	1	1	3	5	7	6	15	0	0	60
Bio	8	11	4	8	2	2	9	5	5	1	2	3	60
Che	7	1	1	1	1	2	9	13	12	5	0	0	60
Phy	7	11	6	4	0	3	15	10	2	2	0	0	60
Mat	8	6	16	14	0	1	6	8	0	1	0	0	60
3 Med	5	4	1	1	2	2	16	15	3	6	3	2	60
Bio	6	8	1	1	7	5	10	10	5	5	1	1	60
Che	11	10	2	6	0	0	11	12	5	1	1	1	60
Phy	4	10	3	4	2	0	17	12	3	4	1	0	60
Mat	15	13	5	8	1	3	5	3	4	3	0	0	60
4 Med	9	5	8	3	0	3	1	3	11	14	1	2	60
Bio	9	10	5	5	1	3	10	7	5	3	1	1	60
Che	13	11	0	1	2	1	12	17	3	3	0	0	60

Disciplines	Preferences (1-20)												Total
	E-1		E-2		S-1		S-2		M/I		O		
	Tag	Ntg	Tag	Ntg	Tag	Ntg	Tag	Ntg	Tag	Ntg	Tag	Ntg	
Phy	7	10	5	8	1	0	16	10	1	2	0	0	60
Mat	10	9	4	5	5	8	7	4	3	3	1	1	60
5 Med	4	4	3	2	3	4	20	18	0	2	0	0	60
Bio	5	7	1	2	3	9	4	2	17	10	0	0	60
Che	8	9	3	3	2	3	17	15	0	0	0	0	60
Phy	5	10	5	5	2	2	17	11	1	2	0	0	60
Mat	7	10	4	3	0	1	16	14	3	2	0	0	60
6 Med	6	4	2	1	5	7	9	4	3	11	5	3	60
Bio	8	12	2	2	3	2	9	7	8	7	0	0	60
Che	10	8	1	0	0	1	1	2	18	18	0	1	60
Phy	7	11	5	4	1	1	13	12	2	3	1	0	60
Mat	13	14	6	7	0	0	5	7	2	2	4	0	60
7 Med	7	3	1	1	0	1	1	5	12	13	9	7	60
Bio	6	8	2	1	7	2	11	15	3	4	1	0	60
Che	14	12	3	3	0	1	13	13	0	1	0	0	60
Phy	3	9	5	3	0	1	17	9	5	8	0	0	60
Mat	7	8	13	8	2	3	5	6	3	5	0	0	60
8 Med	9	5	8	3	0	1	1	7	12	13	0	1	60
Bio	6	8	3	2	3	2	15	13	2	5	1	0	60
Che	12	10	3	2	1	1	13	14	1	3	0	0	60
Phy	7	10	4	2	0	0	17	7	3	9	0	1	60
Mat	8	12	11	7	4	3	5	4	2	4	0	0	60

Disciplines	Preferences (1-20)												Total
	E-1		E-2		S-1		S-2		M/I		O		
	Tag	Ntg	Tag	Ntg	Tag	Ntg	Tag	Ntg	Tag	Ntg	Tag	Ntg	
9 Med	13	6	3	0	2	6	5	3	7	14	0	1	60
Bio	8	12	8	9	1	1	3	3	9	5	1	0	60
Che	9	10	4	2	1	1	2	6	13	11	1	0	60
Phy	6	10	4	2	1	3	16	11	3	3	0	1	60
Mat	11	15	8	3	0	0	8	8	2	4	1	0	60
10 Med	7	7	5	2	1	3	11	12	3	6	3	0	60
Bio	8	8	3	3	1	4	15	13	2	2	1	0	60
Che	15	12	9	4	0	0	3	7	3	7	0	0	60
Phy	9	10	7	8	0	1	12	7	2	4	0	0	60
Mat	8	12	2	5	1	1	14	9	4	3	1	0	60
11 Med	6	4	4	0	0	2	3	5	17	19	0	0	60
Bio	6	8	4	0	4	5	15	15	1	2	0	0	60
Che	8	9	9	7	1	0	7	8	3	6	2	0	60
Phy	9	10	5	2	0	3	10	12	4	5	0	0	60
Mat	5	7	1	1	4	8	5	6	15	8	0	0	60
12 Med	8	5	4	2	0	1	0	6	17	15	1	1	60
Bio	8	9	3	3	3	4	13	13	2	1	1	0	60
Che	13	14	3	2	1	0	5	8	6	5	2	1	60
Phy	7	10	6	5	2	3	12	9	3	3	0	0	60
Mat	4	5	2	0	8	7	8	9	8	9	0	9	60
13 Med	5	4	1	0	0	1	2	3	22	21	0	1	60
Bio	4	6	2	2	4	4	18	17	1	1	1	0	60

Disciplines	Preferences (1-20)												Total
	E-1		E-2		S-1		S-2		M/I		O		
	Tag	Ntg	Tag	Ntg	Tag	Ntg	Tag	Ntg	Tag	Ntg	Tag	Ntg	
Che	13	11	3	2	1	1	4	13	7	3	2	0	60
Phy	10	11	7	4	0	0	10	11	3	4	0	0	60
Mat	9	12	11	7	5	6	1	2	3	3	1	0	60
14 Med	6	4	2	0	2	5	3	2	17	17	0	2	60
Bio	12	14	4	6	0	3	5	2	8	5	1	0	60
Che	8	9	3	2	1	1	6	12	11	6	1	0	60
Phy	7	10	10	6	0	0	12	10	1	4	0	0	60
Mat	9	11	3	3	6	3	7	9	3	4	2	0	60
15 Med	11	5	2	1	0	1	0	0	4	8	13	15	60
Bio	8	10	2	1	1	4	15	12	4	3	0	0	60
Che	11	11	4	3	1	3	7	7	7	6	0	0	60
Phy	6	10	3	1	0	0	5	5	15	14	1	0	60
Mat	9	11	6	3	5	5	5	5	4	4	1	0	60
16 Med	9	4	5	1	0	2	4	7	11	14	1	2	60
Bio	9	9	1	1	1	2	2	4	17	14	0	0	60
Che	10	9	2	2	1	4	13	13	4	2	0	0	60
Phy	6	12	4	3	1	1	16	11	2	2	1	1	60
Mat	9	11	6	3	5	1	7	10	3	4	1	0	60
17 Med	E x c l u d e d												
Bio	6	9	8	3	0	2	6	9	10	7	0	0	60
Che	11	11	1	1	1	2	5	8	10	7	2	1	60
Phy	7	12	4	2	1	1	16	12	2	3	0	0	60

Disciplines	Preferences (1-20)												Total
	E-1		E-2		S-1		S-2		M/I		O		
	Tag	Ntg	Tag	Ntg	Tag	Ntg	Tag	Ntg	Tag	Ntg	Tag	Ntg	
Mat	10	13	10	9	0	0	4	5	4	3	2	0	60
18 Med	E x c l u d e d												
Bio	12	13	9	10	0	1	6	3	2	3	1	0	60
Che	14	12	4	3	0	0	8	13	4	2	0	0	60
Phy	8	9	4	2	0	0	12	14	6	5	0	0	60
Mat	13	12	10	8	0	1	2	6	4	3	1	0	60
19 Med	E x c l u d e d												
Bio	5	8	3	2	2	1	16	14	4	5	0	0	60
Che	11	12	3	1	1	1	7	10	5	6	3	0	60
Phy	5	9	5	2	1	1	4	6	15	12	0	0	60
Mat	8	9	5	2	5	6	4	4	8	9	0	0	60
20 Med	12	8	7	3	2	0	2	0	11	15	0	0	60
Bio	8	9	7	7	1	1	6	6	8	7	0	0	60
Che	11	9	1	3	0	0	7	9	10	8	1	1	60
Phy	4	9	3	2	4	1	18	18	1	0	0	0	60
Mat	8	10	1	2	4	4	8	5	8	9	1	0	60
Totals	805	883	430	314	154	222	870	848	571	588	84	51	5820

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APPENDIX F - LETTERS

Dalubhasaang Normal ng Pilipinas
PAARALANG GRADWADO
Maynila

Marso 10, 1978

Atty. Ponciano B. P. Pineda
Direktor
Surian ng Wikang Pambansa
Maynila

Mahal na Direktor Pineda:

Kalakip nito ang mga talatanungang ginamit ko sa aking kasalukuyang sinusulat na disertasyon. Ang aking naging mga tagasagot ay binuo ng mga mag-aaral, propesor, at praktisyuner sa mga disiplinang sumusunod: medicine, biology, chemistry, physics, at mathematics.

Isang bagay ang ibig ko sanang ihingi ng tulong sa inyong tanggapan kung inyong mamarapatin. Ibig ko sanang malaman kung ang aking ginamit na uri ng Pilipino sa mga talatanungang nabanggit ay maituturing na kauri ng Pilipinong kasalukuyang ginagamit at pinalalaganap ng Surian.

Batid kong ito'y isa na namang malaking abala sa inyong tanggapan ngunit malaki ang aking pag-asang ako'y inyong pauunlakan alang-alang sa kapakanan ng mga pananaliksik pangwikang tulad nito.

Umasa kayong kapag natapos ko ang aking disertasyon ay pagkakalooban ko ng isang sipi ang inyong aklatan.

Maraming salamat.

Lubos na sumasainyo,

ALFONSO O. SANTIAGO

Republika ng Pilipinas
Kagawaran ng Edukasyon at Kultura
SURIAN NG WIKANG PAMBANSA
Maynila

Marso 13, 1978

G. Alfonso O. Santiago
Dalubhasaang Normal ng Pilipinas (PNC)
Maynila

Mahal na G. Santiago:

Tungkol sa isang bagay na inihihingi ninyo ng katugunan sa inyong liham noong Marso 10, 1978:

> Ang Pilipinong ginagamit ninyo sa inyong talatanungan ay kauri (kahimig at kaanyo) ng Pilipinong ginagamit, nililinang at pinalalaganap ng Surian ng Wikang Pambansa.

Inaasahan namin ang tagumpay ng inyong disertasyon na nakikinita naming makapag-aambag sa paglilinang ng Wikang Pambansa.

Matapat na sumasainyo,

PONCIANO B. P. PINEDA
Direktor

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REPUBLIKA NG PILIPINAS
Republic of the Philippines
DALUBHASAANG NORMAL NG PILIPINAS
Philippine Normal College
Manila
Maynila

TANGGAPAN NG PANGULO
Office of the President

November 13, 1977

Bro. Andrew Gonzales
Academic Vice-President
De La Salle University
Manila

Dear Bro. Andrew:

Prof. Alfonso O. Santiago, a faculty member of the Graduate School of the Philippine Normal College, is currently undertaking a study on the development of Pilipino scientific lexicon in the realms of medicine, biology, chemistry, physics, and mathematics. He desires to get the reactions of sample-respondents connected with the leading institutions within Metropolitan Manila, one of which is the De La Salle University. His intended respondents are both students and professors in a number shown below with respect to each discipline:

	Senior Students		Professors	
	Tagalog	Non-Tag	Tagalog	Non-Tag
A. University of the Philippines University of the East Far Eastern University University of Santo Tomas Manila Central University				
1. Medicine 5	5		5	5
2. Biology 5	5		5	5
B. Adamson University Ateneo de Manila University				
3. Chemistry 5	5		5	5
C. De La Salle University Ateneo de Manila University Mapua Institute of Technology				
4. Physics 5	5		5	5
5. Mathematics 5	5		5	5

The intellectualization of Pilipino deserves continual exploration as a possible vehicle in expressing the Filipinos' thinking on scientific and technological matters, especially for educational purposes. It is anticipated that Philippine education will benefit from the results of Prof. Santiago's study.

I will, therefore, greatly appreciate the assistance that you will give him.

Very truly yours,

Benifacio V. Sibayan
President

REPUBLIKA NG PILIPINAS
Republic of the Philippines
DALUBHASAANG NORMAL NG PILIPINAS
Philippine Normal College
Maynila
Manila

TANGGAPAN NG PANGULO
Office of the President

March 2, 1978

Mr. Oscar B. Mapua
President
Mapua Institute of Technology
Manila

Dear President Mapua:

Thank you for the kind assistance that your Office has extended to Professor Alfonso O. Santiago in connection with the survey that he conducted in your school recently.

Professor Santiago himself wishes to express, through this letter, his most sincere gratitude to the following personnel in your school:

1. Engr. Flaviano V. Santos, Mathematics Subject Chairman
2. Engr. Cirilo C. Magtira, Admissions Officer and Physics Subject Chairman
3. Engr. Jorge C. Ponce, Executive Assistant to the Dean, School of Civil Engineering, Environmental and Sanitary Engineering
4. Mr. Ignacio Amparado, Secretary, Office of the President
5. Faculty members and students who acted as respondents

The Philippine Normal College would be happy to be also of service to researchers from your school provided appropriate arrangements are first made.

Very truly yours,

BONIFACIO P. SIBAYAN
President

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APPENDIX G

SUMMARY OF SAMPLE ENGLISH FORMATIVES

USED IN THE STUDY

	English Formative	Formative Type		English Formative	Formative Type
1.	-age	suffix	20.	electro-	combining form
2.	-al	suffix	21.	-ence	suffix
3.	-algia	suffix	22.	-(e)ry	suffix
4.	anti-	prefix	23.	-escence	suffix
5.	-ate	suffix	24.	-fuge	suffix
6.	-ation	suffix	25.	geo-	combining form
7.	-ative	suffix	26.	-graph	combining form
8.	-ator	suffix	27.	gyneco-	combining form
9.	bio-	combining form	28.	hypo-	prefix
10.	carb(o)-	combining form	29.	hystero-	combining form
11.	centri-	combining form	30.	-ic	suffix
12.	cephalo-	combining form	31.	-ical	suffix
13.	chromo-	combining form	32.	-ician	suffix
14.	co-	prefix	33.	-ics	suffix
15.	com-	prefix	34.	-ide	suffix
16.	contra-	prefix	35.	in-	prefix
17.	di-	prefix	36.	-ine	suffix
18.	-ectomy	combining form	37.	-ion	suffix
19.	ef-	prefix	38.	-ism	suffix

Sample English Formatives (continued)

	English Formative	Formative Type		English Formative	Formative Type
39.	iso-	combining form	61.	-scope	combining form
40.	-ist	suffix	62.	-some	suffix
41.	-ity	suffix	63.	-sphere	combining form
42.	-ium	suffix	64.	thermo-	combining form
43.	-ive	suffix	65.	-tion	suffix
44.	-ize	suffix	66.	-tomy	combining form
45.	-logy	combining form	67.	tri-	combining form
46.	-lyte	combining form	68.	-ule	suffix
47.	meta-	prefix	69.	-urgy	combining form
48.	-metry	combining form	70.	-tope	combining form
49.	micro-	combining form			
50.	mono-	prefix			
51.	-morph	combining form			
52.	-oid	suffix			
53.	osteo-	combining form			
54.	-ous	suffix			
55.	para-	prefix			
56.	phospho-	combining form			
57.	pyro-	combining form			
58.	radio-	combining form			
59.	re-	prefix			
60.	-rhage	combining form			

APPENDIX H

ILLUSTRATIONS OF USAGE OF THE FOREIGN LETTERS ADDED TO THE 20-LETTER ABAKADA

Letter	Examples	
'C'	/s/	medicine, cerebral, velocity, recrudescence
	/k/	hysterectomy, antipyretic, acoustics
'F'	/f/	refraction, finite, centrifugal
'J'	/j/	jaundice
	/h/	cirujano, apoplejia, voltaje
'Q'	/k/	aquarium, oblique, quimico
'V'	/v/	vasectomy, commutative, viscosity, carnivorous
'X'	/ks/	apoplexy, monoxide, axiom, bioxido
'Z'	/z/	metamorphize, vaporization, fuerza
'Ñ'		(no representative form found)
'CH'	/k/	chlorate, chromosome, chemical
'LL'	/ly/	malleability, granillo
	/l/	metallurgy, ebullition, crystalline
'RR'	/r/	hemorrhage, hemorragia

APPENDIX I - CLASSIFICATION OF ITEMS USED IN THE STUDY

I. MEDICINE

	E-1	E-2	S-1	S-2	
1.	medicine	medisin	medicina	medisina	panggagamot (CT)
2.	gynecologist	gaynekolodyist	ginecologo	hinekologo	dalubsakit-babae (CT/CD)
3.	surgeon	sardyon	cirujano	siruhano	maninistis (CT/AT)
4.	hysterectomy	histerektomi	histerectomia	isterektomya	alis-bahay-bata (CT)
5.	appendicitis	apendisaytis	apendicitis	apendisitis	maga-apendiks (CT/S-2)
6.	etiology	etyolodyi	etiologia	etiolohiya	mula-sakit (CT)
7.	recrudescence	rekrudesens	recrudescencia	rekrudesensya	binat (CT)
8.	apoplexy	apopleksi	apoplejia	apoplehiya	himatay (CT)
9.	cerebral hemorrhage	serebral hemoreyds	hemorragia cerebral	emorahiya serebral	pagdugo-utak (CT)
10.	cardiograph	kardyograp	cardiografo	kardyograpo	larawan-pintig (CT)
11.	antipyretic	antipayretik	antipiretico	antipiretiko	kontralagnat (CT/S-2)
12.	paratyphoid	parataypoyd	paratifoidea	paratipoydya	malatipus (CT)
13.	cephalalgia	sepalaldya	cefalalgia	sapalalhiya	sakit-ulo (CT)
14.	osteopathy	osteyopati	osteopatia	osteyopatya	sakit-buto (CT)

I. MEDICINE (continued)

	E-1	E-2	S-1	S-2	
15.	family planning	pamili planing	planificacion de familia	planipikasyon de pamilya	pagbabalak-angkan (CT)
16.	contraceptive	kontraseptib	contraceptivo	kontraseptibo	pangontra sa pagbu-buntis (CT/S-2)
17.	penis		pene		kabahagi (Eup) tunod (M) titi (Tab)
18.	sperm	isperm	esperma		punlay (M) tamod (Tab)
19.	vagina	badyayna		bahina	butas (CT) kaluban (M) kiki (Tab)
20.	vasectomy	basektomi	vasectomia	basektomya	pagpapatali (CT/Eup)

II. BIOLOGY

	E-1	E-2	S-1	S-2	NSDB 'Maugnayin'
1.	biology	bayolodyi	biologia	biyolohiya	haynayan
2.	biologist	bayolodyist	biologo	biyologo	haynayanon
3.	anatomy	anatomi	anatomia	anatomya	katwanan
4.	biological	bayolodyikal	biologico	biyolohiko	haynayin/haynayanin
5.	genealogy	dyenealodyi	genealogia	henealohiya	palamulaan
6.	cell	sel	celula	selula	sihay
7.	nucleus	nukleus	nucleo	nukleo	butod
8.	chromosome	kromosom	cromosoma	kromosoma	kulaylawas
9.	tissue	tisyu	tejido	tehido	sihayan
10.	microscopic	maykroskopik	microscopico	mikroskopiko	miksipatin
11.	microscope	maykroskop	microscopio	mikroskopyo	miksipat
12.	microorganism	maykroorganism	microorganismo	mikroorganismo	miktataghay
13.	microbe	maykrob	microbio	mikrobyo	mikhay
14.	germ	dyerm	germen	hermen	binhay
15.	inorganic	inorganik	inorganico	inorganiko	ditaghayin
16.	metamorphize	metamorpays	metamorfosear	metamorposyar	magbanyuhay

II. BIOLOGY (continued)

	E-1	E-2	S-1	S-2	NSDB 'Maugnayin'
17.	granule	granyul	granillo	granilyo	binutil
18.	embryo	embreyo	embrion	embryon	bilig
19.	carnivorous	karniborus	carnivoro	karniboro	laman-kainin
20.	aquarium	akwaryum	acuario	akwaryo	isdaan

III. CHEMISTRY

1.	chemistry	kemistri	quimica	kimika	kapnayan
2.	substance	sabstans	substancia	substansya	bagay
3.	chemist	kemist	quimico	kimiko	kapnayanon
4.	amperage	ampireyds	amperaje	ampirahe	kaampiran
5.	carbide	karbayd	carburo	karburo	karbad
6.	chemical compound	kemikal kompawnd	compuesto quimico	kompuwesto kimiko	sangkapang kemikal
7.	chlorate	kloreyt	clorato	klorato	klorat
8.	chloric acid	klorik asid	acido clorico	asido kloriko	asido klorat
9.	coagulant	koagyulant	coagulante	koagulante	pampamuo
10.	colloid	koloyd	coloide	koloyde	[illegible]ladigkit

III. CHEMISTRY (continued)

	E-1	E-2	S-1	S-2	NSDB 'Maugnayin'
11.	crystalline	kristalin	cristalino	kristalino	bubugin
12.	dioxide	dayoksayd	bioxido	bioksido	daluksad
13.	monoxide	monoksayd	monoxido	monoksido	sanuksad
14.	ebullition	ebyulisyon	ebullicion	ebulisyon	pagkukumulo
15.	efflorescence	eploresens	efflorescencia	eploresensya	halintubig
16.	metallurgy	metalurdyi	metalurgia	metalurhiya	balahakan
17.	isomorphism	aysomorpism	isomorfismo	isomorpismo	kasanyuan
18.	radioisotope	radyoaysotop	radioisotopo	radyoisotopo	dagilapkahasik
19.	viscosity	biskositi	viscosidad	biskosidad	lapuyot
20.	precipitate	presipiteyt	precipitado	presipitado	himuo

IV. PHYSICS

1.	physics	pisiks	fisica	pisika	liknayan
2.	physicist	pisisist	fisico	pisiko	liknayanon
3.	acoustics	akustiks	acustika	akustika	tunugan
4.	dynamics	daynamiks	dinamica	dinamika	isigan
5.	optics	optiks	optica	optika	dalubsugaan
6.	thermodynamics	termodaynamiks	termodinamica	termodinamika	initsigan

IV. PHYSICS (continued)

	E-1	E-2	S-1	S-2	NSDB 'Maugnayin'
7.	atmosphere	atmospir	atmosfera	atmospera	kahanginan
8.	atmospheric pressure	atmosperik presyur	presion atmosferica	presyon atmosperika	kahanginang diin
9.	centrifugal force	sentripyugal pors	fuerza centrifuga	puwersa sentripuga	basisig
10.	electrolyte	elektrolayt	electrolito	elektrolito	dagilusaw
11.	malleability	malyebiliti	maleabilidad	malyabilidad	pagkapukpukin
12.	molecule	molekyul	molecula	molekula	mulatil
13.	phosphorescence	posporesens	fosforescencia	posporesensya	pospowanag
14.	refraction	repraksyon	refraccion	repraksyon	saliko
15.	sentient heat	sensyent hit	calor latente	kalor latente	init na lantad
16.	storage battery	istoreyds bateri	bateria electrica	baterya elektrika	tinggalitab
17.	thermo-electricity	termo-elektrisiti	termo-electricidad	termo-elektrisidad	initdagitban
18.	vaporization	beyporisesyon	vaporizacion	baporisasyon	sasingaw
19.	velocity	belositi	velocidad	belosidad	tulin
20.	voltage	bolteyds	voltaje	boltahe	kabolthan

V. MATHEMATICS

	E-1	E-2	S-1	S-2	NSDB 'Maugnayin'
1.	mathematics	matematiks	matematica	matematika	sipnayan
2.	mathematician	matematisyan	matematico	matematiko	sipnayanon
3.	algebra	aldyebra	algebra	alhebra	panandaan
4.	geometry	dyometri	geometria	heometriya	sukgisan
5.	arithmetic	aritmetik	aritmetica	aritmetika	bilnuran
6.	calculus	kalkyulus	calculo	kalkulo	tayahan
7.	axiom	aksyom	axioma	aksyoma	batlain
8.	theorem	tiyorem	teorema	tiyorema	hunain
9.	calculator	kalkyuleytor	calculador	kalkulador	pantaya
10.	commutative	komyuteytib	conmutativo	konmutatibo	palitin
11.	triangle	trayanggel	triangulo	triyanggulo	tatsiha tatsulok (SWP)
12.	angle	enggel	angulo	anggulo	siha
13.	hypotenuse	haypotenus	hipotenusa	iputenusa	tagway
14.	right angle	rayt enggel	angulo recto	anggulo rekto	sihang tadlong
15.	acute angle	akyut enggel	angulo agudo	anggulo agudo	sihang kipot

V. MATHEMATICS (continued)

	E-1	E-2	S-1	S-2	NSDB 'Maugnayin'
16.	oblique angle	oblik enggel	angulo oblicuo	anggulo obliko	sihang talibas
17.	cosecant	kosekant	cosecante	kosekante	kasekway
18.	cosine	kosayn	coseno	koseno	kasinway
19.	infinite	impinit	infinito	impinito	di-hangganin
20.	finite	paynayt	finito	pinito	hangganin

APPENDIX J

RESULT OF THE CHI SQUARE TEST ON THE RESPONSES OF NTG_1 AND NTG_2 PRACTITIONER-RESPONDENTS*

Respondents		Option-Types						Total
		E-1	E-2	S-1	S-2	M	O	
NTG_1 (30)	f_o	180	60	42	192	120	6	600
	f_e	186	56.25	41.25	184.50	125.50	6.75	
NTG_2 (10)	f_o	68	15	13	54	47	3	200
	f_e	62	18.75	13.75	61.50	41.75	2.25	
Total f_o		248	75	55	246	167	9	800
Row 1 (NTG_1)		.194	.25	.014	.305	.220	.083	1.066
ROW 2 (NTG_2)		.581	.75	.041	.915	.660	.250	3.197
Total		.775	1.00	.055	1.220	.880	.333	4.263

$p. < .01$

*NTG_1 - Non-Tagalog respondents permanently residing in Tagalog region; NTG_2 - Non-Tagalog respondents permanently residing in non-Tagalog region.

APPENDIX K

PROFILE OF RESPONDENTS

I. MEDICINE

A. Students

Name	Age Range	School/ Year/Course	First Language	Second Language	Home Language	Questionnaire Used
1. Castillo, Emerito I. Jr	20-29	FEU, 3rd Medicine	Tagalog	Ilongo	Tagalog	A
2. Cruz, Ponciano D.	20-29	UP, 3rd Medicine	Tagalog	-----	Tagalog	A
3. Landas, Normita G.	20-29	UP, 3rd Medicine	Tagalog	-----	Tagalog	A
4. Peña, A. S. dela	20-29	FEU, 3rd Medicine	Tagalog	-----	Tagalog	A
5. Tienzo, Josefina	20-29	UP, 3rd Medicine	Tagalog	-----	Tagalog	A
6. Antiporda, Celso	20-29	UP, 3rd Medicine	Tagalog	-----	Tagalog	B
7. Baira, Nimfa R.	20-29	FEU, 3rd Medicine	Tagalog	-----	Tagalog	B
8. Manguray, Fredisvinda	20-29	FEU, 3rd Medicine	Tagalog	-----	Tagalog	B
9. Pagaduan, Carol	20-29	UP, 3rd Medicine	Tagalog	-----	Tagalog	B
10. Ranches, Susie B.	20-29	UP, 3rd Medicine	Tagalog	-----	Tagalog	B

I. MEDICINE (continued) A. Students

Name	Age Range	School/ Year/Course	First Language	Second Language	Home Language	Questionnaire Used
11. Ancheta, Alfredo A.	20-29	FEU, 3rd Medicine	Ilocano	Tagalog	Ilocano Tagalog	A
12. Apolinar, Corazon	20-29	UP, 3rd Medicine	Igorot	Tagalog Ilocano	Igorot Tagalog	A
13. Justiniano, Ma. Elena D.	20-29	UP, 3rd Medicine	Ilongo	Tagalog	Tagalog	A
14. Mesa, Artemio B.	20-29	FEU, 3rd Medicine	Waray	Tagalog	Waray	A
15. Soliman, Edna M.	20-29	FEU, 3rd Medicine	Pampango	Tagalog	Pampango	A
16. Calubaquib, Romeo L.	20-29	FEU, 3rd Medicine	Ibanag	Ilocano Tagalog	Ibanag	B
17. Costales, Tony	20-29	UP, 3rd Medicine	Ilocano	Tagalog	Ilocano	B
18. Defensor, Linnea P.	20-29	UP, 3rd Medicine	Ilongo	Tagalog	Ilongo	B
19. Feliciano, Antonio B.	20-29	FEU, 3rd Medicine	Chavacano	Tagalog	Chavacano	B
20. Nagrampa, Marrietta R.	20-29	FEU, 3rd Medicine	Bicol	Tagalog	Bicol	B

I. MEDICINE (continued)

B. Professors

Name	Age Range	School/ Department	First Language	Second Language	Home Language	Questionnaire Used
21. Angeles, Leticia T.	40–49	UP Medicine	Tagalog	Ilongo	Tagalog	A
22. Cruz, Mariano dela	40–49	UP Medicine	Tagalog	-----	Tagalog	A
23. Garcia, Fe Palo	40–49	UP Medicine	Tagalog	-----	Tagalog	A
24. Rivera, Genesis C.	30–39	FEU Medicine	Tagalog	-----	Tagalog	A
25. Sangueza, Rolando	30–39	FEU Medicine	Tagalog	-----	Tagalog	A
26. Ampil, Domingo G.	Above 60	FEU Medicine	Tagalog	-----	Tagalog	B
27. Leon, de Gerardo	50–59	UP Medicine	Tagalog	-----	Tagalog	B
28. Mendoza, Edgardo D.	40–49	FEU Medicine	Tagalog	-----	Tagalog	B
29. Moral, Gregorio	40–49	UST Medicine	Tagalog	-----	Tagalog	B
30. Policarpio, Benjamin	30–39	UE Medicine	Tagalog	-----	Tagalog	B

I. MEDICINE (continued)

B. Professors

Name	Age Range	School/ Department	First Language	Second Language	Home Language	Questionnaire Used
31. Arguil,	20-29	FEU Medicine	Ilocano	Tagalog	Tagalog	A
32. Buyco Antonio A.		UP Medicine	Hiligaynon	Tagalog	Tagalog	A
33. Cabreira, Nela	20-29	FEU Medicine	Cebuano	Tagalog	Cebuano	A
34. Esteban, Jose N.	40-49	UP Medicine	Ilocano	Pangasinan	Tagalog	A
35. Magkasi, Remedios	40-49	FEU Medicine	Ilocano	Tagalog	Ilocano Tagalog	A
36. Aquino, Teresita	40-49	UST Medicine	English	Tagalog	English Tagalog	B
37. Coronel, Remedios F.	30-39	UST Medicine	Ilocano	Tagalog	Ilocano Tagalog	B
38. Estrada, Horacio R.	50-59	UP Medicine	Pangasinan	Tagalog Ilocano	Tagalog English	B
39. Reyes, Pablo B.	40-49	UE Medicine	Pampango	Tagalog	Tagalog English	B
40. Santos, Hermogenes	Above 60	UST Medicine	Spanish	Tagalog	Spanish Tagalog	B

I. MEDICINE (continued) C. Practitioners

Name	Age Range	Place of Work	First Language	Second Language	Home Language	Questionnaire Used
41. Martinez, Antonio C.	40–49	Caloocan City	Tagalog	-----	Tagalog	A
42. Apeles, Luz	40–49	Consultant CMC	Tagalog	-----	Tagalog	A
43. Montoya, Concepcion	30–39	Private Clinic Manila	Tagalog	Spanish	Tagalog Spanish	A
44. De Leon, Amadeo	40–49	Proj 4 Health Center	Tagalog	-----	Tagalog	A
45. Mercedes, Malolia B.	40–49	Dept of Health	Tagalog	-----	Tagalog	A
46. Calabig, Rosendo P.	40–49	Private Clinic Quezon Blvd.	Tagalog	-----	Tagalog	B
47. Ignacio, Victor	40–59	Private Clinic Makati	Tagalog	-----	Tagalog	B
48. Medalla, Eustaquio M.	40–49	Caloocan City General Hospital	Tagalog	-----	Tagalog	B
49. Mina, Teodoro	50–59	College Physician Phil Normal Col	Tagalog	-----	Tagalog	B
50. Panaligan, Elena H.	30–39	Private Clinic San Andres, Mla	Tagalog	-----	Tagalog	B

I. MEDICINE (continued) C. Practitioners

Name	Age Range	Place of Work	First Language	Second Language	Home Language	Questionnaire Used
51. Fondevilla, Giovanna	30-39	Chief Romblon Hospital	Hiligaynon	Tagalog	Hiligaynon	A
52. Paz, Vicente dela	40-49	Private Clinic Manila	Bicol	Tagalog	Tagalog English	A
53. Quindara, G. D.	40-49	Medical Officer ASHCE	Ilocano	Tagalog	Ilocano	A
54. Africa, Lourdes	40-49	PGH, VMH	English	Tagalog	English Tagalog	A
55. Roman, Dionision	50-59	Black Nazarene Clinic, Manila	English	Tagalog	Tagalog English	A
56. Torres, Ismael	30-39	Radiologist Heart Center of Asia	English	Tagalog	Tagalog English	B
57. Benedicto, Victorio	30-39	Romblon Gen Hosp	Hiligaynon	Tagalog	Hiligaynon	B
58. Fetalino, Manuel	40-49	Radiologist Medical Center Manila	Visayan	Tagalog	Tagalog Visayan	B
59. Montaña, Juan M.	40-49	Romblon Gen Hosp	Visayan	Tagalog	Visayan	B
60. Reyes, Tyrone M.	30-39	Dept of Rehabilitation, Makati Med Center	Visayan	Tagalog	Tagalog	B

II. BIOLOGY

A. Students

Name	Age Range	School/ Year/Course	First Language	Second Language	Home Language	Questionnaire Used
1. Castillo, Eloisa S.	20-29	UST, 4th BS Zool	Tagalog	-----	Tagalog	A
2. Manlangit, Mariano B.	20-29	UST, 4th BS Zool	Tagalog	Ilocano	Tagalog	A
3. Salazar, Ricardo S.	20-29	UST, 4th BS Zool	Tagalog	-----	Tagalog	A
4. San Jose, Liana Ma.	20-29	UST, 4th BS Zool	Tagalog	-----	Tagalog	A
5. Reyes, Jocelyn L.	20-29	UST, 4th BS Zool	Tagalog	-----	Tagalog	A
6. Amonoy, Henedina M.	20-29	UST, 4th BS Zool	Tagalog	-----	Tagalog	B
7. Bautista, Elvira	20-29	UST, 4th BS Zool	Tagalog	-----	Tagalog	B
8. Malabanan, Valentina C.	20-29	UST, 4th BS Zool	Tagalog	-----	Tagalog	B
9. Cruz, Eduard D.	20-29	UST, 4th BS Zool	Tagalog	-----	Tagalog	B
10. Buerano, Corazon C.	20-29	UST, 4th BS Zool	Tagalog	-----	Tagalog	B

II. BIOLOGY (continued) A. Students

Name	Age Range	School/ Year/Course	First Language	Second Language	Home Language	Questionnaire Used
11. Pineda, Geraldine C.	20-29	UST, 4th BS Zool	Ilocano	Tagalog	Ilocano	A
12. San Agustin, Celso S. V.	20-29	UST, 4th BS Zool	Pangasinan	Tagalog	Pangasinan	A
13. Taguba, Emmanuel V.	20-29	UST, 4th BS Zool	Ibanag	Tagalog Ilocano	Ibanag Ilocano	A
14. Tuaño, Merceditas B.	20-29	UST, 4th BS Zool	Cebuano	Tagalog	Cebuano	A
15. Loresco, Emily I.	20-29	UST, 4th BS Zool	Aklanon	Tagalog	Aklanon	A
16. Cavalida, Vicente Jr.	20-29	UST, 4th BS Zool	Cebuano	Tagalog Ilongo	Cebuano Tagalog	B
17. Cabebe, Estefania	20-29	UST, 4th BS Zool	Ilocano	Tagalog	Ilocano	B
18. Gapuz, Catherine	20-29	UST, 4th BS Zool	English	Tagalog	English	B
19. Tiong, Arlene C.	20-29	UST, 4th BS Zool	Pangasinan	Tagalog	Pangasinan	B
20. Yatco, Ma. Lourdes	20-29	UST, 4th BS Zool	English	Tagalog	English	B

II. BIOLOGY (continued)

B. Professors

Name	Age Range	School/ Degree	First Language	Second Language	Home Language	Questionnaire Used
21. Nayo, Sonia G.	30-39	UST MS Botany	Tagalog	-----	Tagalog	A
22. Modelo, Romeo B.	20-29	UST BS Bio	Tagalog	-----	Tagalog	A
23. Lorica, Dante	20-29	UST BS Zool	Tagalog	-----	Tagalog	A
24. Ferrer, Flor	40-49	UST BS Bio	Tagalog	-----	Tagalog	A
25. Dayao, Virginia	50-59	UST BS Zool	Tagalog	-----	Tagalog	A
26. Barretto, Rechilda	20-29	UST BS Botany	Tagalog	-----	Tagalog	B
27. Bermudez, Ofelia D.	30-39	UST BS Zool	Tagalog	-----	Tagalog	B
28. Guerrero, Orlando K.	50-59	UST BS Zool	Tagalog	-----	Tagalog	B
29. Maniquis, Jose R.	50-59	UST BS Zool	Tagalog	-----	Tagalog	B
30. Name Withheld	40-49	UST BS Botany	Tagalog	-----	Tagalog	B

II. BIOLOGY (continued) B. Professors

Name	Age Range	School/ Degree	First Language	Second Language	Home Language	Questionnaire Used
31. Amon, Ermelinda R.	20-29	UST MS Botany	Visayan	Tagalog	Visayan Tagalog	A
32. Bautista, Divina Y.	40-49	UST MS Bio BS Zool	Spanish	Tagalog	Spanish Tagalog	A
33. Boco, Amelia A.	20-29	UST MS Bio	Waray	Tagalog Cebuano	Waray Tagalog	A
34. Catangui, Felipe P.	40-49	UST MS Bio	Bicol	Tagalog	Bicol Tagalog	A
35. Madulid, Rosie	30-39	UST BS Zool	Ilocano	Tagalog	Ilocano Tagalog	A
36. Baroquillo,	20-29	UST BS Bio	English	Tagalog	English Tagalog	B
37. Kanapi, Carmen G.	50-59	UST PhD, MS, BS Zool	Spanish	Ilocano Ibanag Tagalog	Spanish	B
38. Name Withheld	20-29	UST BS Zool	Ilongo	Tagalog	Ilongo Tagalog	B
39. Villanueva, A. Z.	50-59	UST BS Zool	Pangasinan	Tagalog	Pangasinan	B
40. Lapuz, Zenaida R.	20-29	UST BS Zool	Ilocano	Tagalog	Ilocano Tagalog	B

II. BIOLOGY (continued) C. Practitioners

Name	Age Range	Place of Work	First Language	Second Language	Home Language	Questionnaire Used
41. Bernardo, Lablita	30-39	Private Clinic Manila	Ilocano	Tagalog	Ilocano Tagalog	A
42. Castillo, Teresita P.	30-39	Consultant Chinese Gen Hosp	Pampango	Tagalog	Pampango Tagalog	A
43. Pitpilan, Servillano C.	30-39	Sanitary Officer Romblon	Ilocano	Tagalog Pangasinan	Ilocano Tagalog	A
44. Rosales, Cesar	40-49	Private Clinic Manila	English	Tagalog	English	A
45. Sison, Wilfredo	30-39	Resident Phy PGH	Bicol	Tagalog	Bicol Tagalog	A
46. Benedicto, Victorio	30-39	Resident Phy Romblon Gen Hosp	Hiligaynon	Tagalog Romblomanon	Hiligaynon	B
47. Conchita, B.	30-39	Consultant Martinez Memo Hosp, Caloocan C	English	Tagalog	English Tagalog	B
48. Guerrero, Carmencita G.	30-39	Assist Administrator, Annette Clinic, Mand R	English	Tagalog	English Tagalog	B
49. Name Withheld	40-49	Resident Phy PGH	Visayan	Tagalog	Visayan Tagalog	B
50. Tapia, Edilberta	40-49	Private Clinic Manila	Ilocano	Tagalog	Ilocano Tagalog	B

II. BIOLOGY (continued) C. Practitioners

Name	Age Range	Place of Work	First Language	Second Language	Home Language	Questionnaire Used
51. Angeles, Carlos Jr.	30-39	Pfizer, Inc	Tagalog	-----	Tagalog	A
52. Ejercito, Luisa	40-49	Charity Clinic Manila	Tagalog	Zambal	Tagalog	A
53. Miranda, Jesusa	20-29	Private Clinic	Tagalog	-----	Tagalog	A
54. Ojeda, Evelyn	40-49	Private Clinic Manila	Tagalog	-----	Tagalog	A
55. Warren, Daniel L.	30-39	Private Clinic Manila	Tagalog	-----	Tagalog English	A
56. Erasmo, Julieta S.	30-39	Manila Health Dept	Tagalog	-----	Tagalog	B
57. Estrella, Teresita T.	30-39	Zamora Elem Sch Phy	Tagalog	-----	Tagalog	B
58. Ibarrola, Erlinda F.	30-39	Private Clinic Quezon City	Tagalog	-----	Tagalog English	B
59. Miranda, Lourdes V.	30-39	UP-PGH Med Ctr	Tagalog	-----	Tagalog	B
60. Reyes, Dubbiano	50-59	FEU & UDMC	Tagalog	-----	Tagalog	B

III. CHEMISTRY

A. Students

Name	Age Range	School/ Year/Course	First Language	Second Language	Home Language	Questionnaire Used
1. Ancheta, Genoveva	20-29	Adamson, 5th Chem Engrg	Tagalog	-----	Tagalog	A
2. Asuncion, Ma. Sylvia	20-29	Adamson, 4th Chem Engrg	Tagalog	-----	Tagalog	A
3. Cardena, Dionisio	20-29	Adamson, 5th Chem Engrg	Tagalog	-----	Tagalog	A
4. Castillo, Adelaida G.	20-29	Adamson, 4th Chem Engrg	Tagalog	-----	Tagalog	A
5. Fresco, Ligaya E.	20-29	Adamson, 5th Chem Engrg	Tagalog	-----	Tagalog	A
6. Cruz, Ma. Teresa	20-29	Adamson, 5th Chem Engrg	Tagalog	-----	Tagalog	B
7. Mateo, Wilma	20-29	Adamson, 5th Chem Engrg	Tagalog	-----	Tagalog	B
8. Panol, Francia	20-29	Adamson, 5th Chem Engrg	Tagalog	-----	Tagalog	B
9. Paraiso, Rhodora	20-29	Adamson, 5th Chem Engrg	Tagalog	-----	Tagalog	B
10. Ramos, Ma. Corazon	20-29	Adamson, 4th Chem Engrg	Tagalog	-----	Tagalog	B

III. CHEMISTRY (continued) A. Students

Name	Age Range	School/ Year/Course	First Language	Second Language	Home Language	Questionnaire Used
11. Dy, Julie	20-29	Adamson, 4th Chem Engrg	Chinese	Ilocano Tagalog	Chinese	A
12. Ong, Lilian S.	20-29	Adamson, 5th Chem Engrg	Bicol	Tagalog	Bicol Tagalog	A
13. Ong, Marilou	20-29	Adamson, 4th Chem Engrg	Waray	Tagalog	Waray Tagalog	A
14. Ramos, Reuben	20-29	Adamson, 5th Chem Engrg	Ilocano	Tagalog	Ilocano	A
15. Ravago, Susan	20-29	Adamson, 5th Chem Engrg	Bicol	Tagalog	Bicol	A
16. Cellan, Feliciana	20-29	Adamson, 5th Chem Engrg	Cebuano	Tagalog	Cebuano	B
17. Espinosa, Ophelia T.	20-29	Adamson, 5th Chem Engrg	English	Tagalog	English Tagalog	B
18. Ordonez, Prisca V.	20-29	Adamson, 5th Chem Engrg	Ilocano	Tagalog	Ilocano	B
19. Rase, Diena R.	20-29	Adamson, 5th Chem Engrg	Visayan	Tagalog	Visayan Tagalog	B
20. Tesoro, Maria Teresa	20-29	Adamson, 5th Chem Engrg	English	Tagalog	English Tagalog	B

III. CHEMISTRY (continued)

B. Professors

Name	Age Range	School/ Degree	First Language	Second Language	Home Language	Questionnaire Used
21. Bolisay, Florencia	20-29	Adamson BS Chem	Tagalog	-----	Tagalog	A
22. Geronimo, Marcela G.	20-29	Adamson BS Chem	Tagalog	-----	Tagalog	A
23. Poblete, Asteria T.	30-39	Adamson BS Chem	Tagalog	-----	Tagalog	A
24. Resurrec-cion, F.	30-39	Adamson BS Chem	Tagalog	-----	Tagalog	A
25. Rosario, Renato B del	20-29	Ateneo BS Chem	Tagalog	-----	Tagalog	A
26. Name Withheld		Ateneo BS Chem	Tagalog	-----	Tagalog	B
27. Leynes, Violeta C.	30-39	Adamson BS Chem	Tagalog	-----	Tagalog	B
28. Name Withheld	20-29	Ateneo BS Chem	Tagalog	-----	Tagalog	B
29. Name Withheld	20-29	Ateneo BS Chem	Tagalog	-----	Tagalog	B
30. Organista, Teresita	30-39	Adamson BS Chem	Tagalog	-----	Tagalog	B

III. CHEMISTRY (continued)

B. Professors

Name	Age Range	School/ Degree	First Language	Second Language	Home Language	Questionnaire Used
31. Centeno, Socorro	20-29	Adamson BS Chem	Pangasinan	Tagalog	Pangasinan	A
32. Name Withheld	20-29	Adamson BS Chem	Bicol	Tagalog	Bicol	A
33. Paz, Vicente dela	40-49	UST MS Chem	Ilongo	Tagalog	Tagalog English	A
34. Name Withheld	20-29	Adamson BS Chem	Waray	Tagalog	Waray	A
35. Balaus, Salvador	40-49	Ateneo BS Chem/Pharm	English	Tagalog	Tagalog English	A
36. Bernaldez, Alicia	50-59	UST MS Chem	English	Tagalog	English Tagalog	B
37. Guzman, Monserrat	40-49	Adamson BS Pharm	Visayan	Tagalog	Visayan Tagalog	B
38. Hinlo, Beatriz P.	30-39	Adamson BS Chem	Visayan	Tagalog	Visayan Tagalog	B
39. Purisima, Enrico	20-29	Adamson BS Chem	Ilocano	Tagalog	Ilocano	B
40. Sarno, Evelyne L.	20-29	Adamson BS Chem	Visayan	Tagalog	Visayan Tagalog	B

III. CHEMISTRY (continued) C. Practitioners

Name	Age Range	Place of Work	First Language	Second Language	Home Language	Questionnaire Used
41. Tulod, Leonardo P.	30-39	Chemist 23 Camerino St Proj 4, QC.	Tagalog	-----	Tagalog	A
42. Datu, Jose	30-39	Chemist Phil Petroleum Corp	Tagalog	-----	Tagalog	A
43. Espino, Amelia	40-49	Chemist Mercury Drug	Tagalog	-----	Tagalog	A
44. Garcia, Rina	20-29	Pacific Oxygen & Acetyline Co	Tagalog	-----	Tagalog	A
45. Rivera, Januaria	30-39	Pharmacist Manila	Tagalog	-----	Tagalog	A
46. Golez, Jose Tady	30-39	BS Chem 67 C Salvador Loyola Hts, QC	Tagalog	-----	Tagalog	B
47. Crisostomo, Lydia C.	50-59	BS Chem Bu of Plant Industry	Tagalog	-----	Tagalog	B
48. Gomez, Elvira	20-29	Chem Engr Marine Equip & Supply Corp	Tagalog	-----	Tagalog	B
49. Martinez, Benedicta	40-49	Pharmacist Garcia Bldg	Tagalog	-----	Tagalog	B
50. Santos, Rensie	20-29	Chem Engr Connel Bros	Tagalog	-----	Tagalog	B

III. CHEMISTRY (continued) C. Practitioners

Name	Age Range	Place of Work	First Language	Second Language	Home Language	Questionnaire Used
51. Arrojado,	20-29	BS Chem, K & D Center, SMC	Ilongo	Tagalog	Ilongo	A
52. Asencio Baltazar C.		BS Chem, Inter Phil Lab, Rizal	Pampango	Tagalog	Pampango	A
53. Regudo, Filomeno C	30-39	Chem Engr Plant Manager Planters Prod Bataan	Ilocano	Tagalog	Ilocano	A
54. Obson, Conrado	40-49	BS Chem Consolidated Can Corp	Ibanag	Ilocano Tagalog	Ibanag	A
55. Resulta, Erwin M.	20-29	Chem Engr MARESCO	Waray	Tagalog	Waray	A
56. Pagarigan, Belinda	20-29	Chem Engr Connell Bros	Pampango	Tagalog	Pampango	B
57. Maraneta, Ricardo S.	30-39	Chem Engr 9-E Kamias Rd QC	Ilocano	Tagalog	Ilocano	B
58. Tolentino, Luz	50-59	BS Chem Manila	Cebuano	Tagalog	Cebuano Tagalog	B
59. Urbistondo, Roberto	30-39	BS Chem Qual Control Sup	Ilocano	Tagalog	Ilocano	B
60. Valencia, Nelly	40-49	Chief Chemist	Ilongo	Tagalog	Ilongo Tagalog	B

IV. PHYSICS

A. Students

Name	Age Range	School/ Year/Course	First Language	Second Language	Home Language	Questionnaire Used
1. Dacanay, Benjamin M.	20-29	MIT, 3rd Mech Engrg	Tagalog	-----	Tagalog	A
2. Directo, Grace C.	20-29	MIT, 4th Mgmt & Ind Engrg	Tagalog	-----	Tagalog	A
3. Name Withheld	20-29	Ateneo, 4th BS Phy	Tagalog	-----	Tagalog	A
4. Name Withheld	20-29	Ateneo, 4th BS Phy	Tagalog	-----	Tagalog	A
5. Ravino, R. R.	20-29	MIT, 3rd Mech Engrg	Tagalog	-----	Tagalog	A
6. Calalang, Rolando V.	20-29	MIT, 3rd Mech Engrg	Tagalog	-----	Tagalog	B
7. Feliciano, Walter R.	20-29	MIT, 3rd Mech Engrg	Tagalog	-----	Tagalog	B
8. Gianan, Luis R.	20-29	MIT, 3rd Mech Engrg	Tagalog	-----	Tagalog	B
9. Name Withheld	20-29	MIT, 3rd Mech Engrg	Tagalog	-----	Tagalog	B
10. Name Withheld	20-29	MIT, 3rd Mech Engrg	Tagalog	-----	Tagalog	B

IV. PHYSICS (continued) A. Students

Name	Age Range	School/ Year/Course	First Language	Second language	Home Language	Questionnaire Used
11. Bautista, Cesar	Below 20	DLSU, 2nd BS Math/Phy	English	Tagalog	English Tagalog	A
12. Ciceron, Emily A.	Below 20	DLSU, 3rd BS Math/Phy	English	Tagalog	English Tagalog	A
13. Gochioco, Lawrence	20-29	Ateneo, 4th BS Phy	Chinese	Tagalog	Chinese	A
14. Llacuna, Jose T.	20-29	MIT, 3rd BS Civil Engrg	Bicol	Tagalog Cebuano	Bicol Tagalog	A
15. Zenia, Josefina S.	Below 20	DLSU, 3rd BS Math/Phy	Ilocano	Tagalog	Ilocano Tagalog	A
16. Balaño, Loreto	Below 20	MIT, 2nd Mech Engrg	Visayan	Tagalog	Visayan Tagalog	B
17. Bones, Patria	Below 20	MIT, 2nd Mech Engrg	Ilongo	Tagalog	Ilongo	B
18. Dellosa, Freedom	Below 20	MIT, 2nd Mech Engrg	Bicol	Tagalog	Bicol Tagalog	B
19. Jimenez, Annabelle	Below 20	DLSU, 3rd BS Math/Phy	English	Tagalog	English	B
20. Sawit, Ramon M.	Below 20	MIT, 2nd Mech Engrg	Ilocano	Tagalog	Ilocano Tagalog	B

IV. PHYSICS (continued) B. Professors

Name	Age Range	School/ Department	First Language	Second Language	Home Language	Questionnaire Used
21. Magtira, Remedios	30-39	MIT Phy Dept	Tagalog	-----	Tagalog	A
22. Marquez, Soledad P.	30-39	MIT Phy Dept	Tagalog	-----	Tagalog	A
23. Mendoza, Noel Lazaro	20-29	MIT Phy Dept	Tagalog	-----	Tagalog	A
24. Rivero, Bayani C.	30-39	DLSU, Phy Dept Chrmn	Tagalog	-----	Tagalog	A
25. Tavanlar, Belen B.	40-49	MIT Phy Dept	Tagalog	-----	Tagalog	A
26. Avecilla, Eliseo R.	20-29	DLSU, Phy Dept	Tagalog	-----	Tagalog	B
27. Calderon, Jose C.	40-49	MIT Phy Dept	Tagalog	-----	Tagalog	B
28. Enriquez, Danilo	20-29	MIT Phy Dept	Tagalog	-----	Tagalog	B
29. Guiang, Roberto A.	40-49	MIT Phy Dept	Tagalog	-----	Tagalog	B
30. Magtira, Cirilo C.	Above 60	MIT Phy Dept Chrmn	Tagalog	-----	Tagalog	B

IV. PHYSICS (continued) B. Professors

Name	Age Range	School/ Department	First Language	Second Language	Home Language	Questionnaire Used
31. Asis, de Ma. Luisa	20-29	DLSU Phy Dept	Hiligaynon	Tagalog	Hiligaynon	A
32. Daen, Eugenio P.	20-29	MIT Phy Dept	Bicol	Tagalog	Bicol	A
33. Fernandez, Danilo	20-29	MIT Phy Dept	Magindanao	Tagalog	Magindanao	A
34. Name Withheld	30-39	MIT Phy Dept	Ilocano	Tagalog	Ilocano Tagalog	A
35. Nieva, Claro	20-29	MIT Phy Dept	Bicol	Tagalog	Bicol	A
36. Alonzo, Jose P.	20-29	MIT Phy Dept	Ilocano	Tagalog	Ilocano	B
37. Coronel, Sr. Iluminada	40-49	Ateneo Coordinator BS Math	Pampango	Tagalog	English	B
38. Quibilan, Edelmiro I.	30-39	MIT Phy Dept	Chavacano	Tagalog	Chavacano Tagalog	B
39. Quimpo, Norman	30-39	Ateneo Phy Prof.	Ilongo	Tagalog	Ilongo	B
40. Tan,	20-29	Ateneo Phy Dept	Ilocano	Tagalog	Tagalog Fookien	B

IV. PHYSICS (continued) C. Practitioners

Name	Age Range	Place of Work	First Language	Second Language	Home Language	Questionnaire Used
41. Africa, Gonzalo	40-49	Superintendent MERALCO	Tagalog	Chavacano	Tagalog English	A
42. Esguerra, Alberto S.	30-39	Proj. Engr BRC, Limay, B	Tagalog	-----	Tagalog	A
43. Miclat, Joaquin B.	20-29	Equipment Engr BRC, Limay, B	Tagalog	-----	Tagalog	A
44. Soriano, Felipe R.	30-39	Proj. Engr BRC, Limay, B	Tagalog	-----	Tagalog	A
45. Gervacio, Bayani P.	30-39	Mech Engr Quezon City	Tagalog	-----	Tagalog	A
46. Calulot, Perfecto A.		Chief, Ifugao Prov Irrig Off Civil Engr	Tagalog	-----	Tagalog	B
47. Name Withheld	30-39	Civil Engr Bu. of Pub Highways	Tagalog	-----	Tagalog	B
48. Name Withheld	30-39	Civil Engr Quezon City	Tagalog	-----	Tagalog	B
49. Name Withheld	30-39	Mech Engr Manila	Tagalog	-----	Tagalog	B
50. Villamor, Leonardo	30-39	Civil Engr City Hall, Mla	Tagalog	-----	Tagalog	B

IV. PHYSICS (continued) C. Practitioners

Name	Age Range	Place of Work	First language	Second Language	Home Language	Questionnaire Used
51. Clutario, Manuela	50-59	Elec Engr Manila	English	Tagalog	English Tagalog	A
52. Farrales, Ethelyne	20-29	Mech Engr Manila	English	Tagalog	Tagalog English	A
53. Mallare, Ricardo L.	20-29	Mech Engr Proj Engr BRC, Limay, B	Ilongo	Tagalog	Ilongo	A
54. Capinpin, Emmanuel F.	30-39	Corporate Auditor, NIA	Pampango	Tagalog	Tagalog	A
55. Villarta, Larry Cruz	20-29	MS Math/Phy	Ilocano	Tagalog	Ilocano	A
56. Camayo, Tomas	50-59	Civil Engr	Ibanag	Tagalog	Tagalog	B
57. Dugyon, Oscar B.	20-29	Civil Engr Manila	Ifugao	Tagalog Ilocano	Tagalog	B
58. Halili, Cecilio	30-39	Civil Engr MWSS	Pampango	Tagalog	Tagalog	B
59. Saulog, Alejandro	30-39	Civil Engr Wings Const Inc.	Ilocano	Tagalog	Tagalog Ilocano	B
60. Padayao, Rolando C.	20-29	Mech Engr Bu. of Mines	Waray	Tagalog	Waray Tagalog	B

V. MATHEMATICS

A. Students

Name	Age Range	School/ Year/Course	First Language	Second Language	Home Language	Questionnaire Used
1. Borbon, Ma. Emerita	20-29	DLSU, 4th AB Math	Tagalog	-----	Tagalog	A
2. Castro, Nestor A.	20-29	MIT, 5th Civil Engrg	Tagalog	-----	Tagalog	A
3. Noriel, Joselito L.	20-29	MIT, 5th Civil Engrg	Tagalog	-----	Tagalog	A
4. Name Withheld	20-29	DLSU, 4th AB Math	Tagalog	-----	Tagalog	A
5. Name Withheld	20-29	MIT, 5th BS Math/Phy	Tagalog	-----	Tagalog	A
6. Briones, Manolito A.	20-29	MIT, 5th Civil Engrg	Tagalog	-----	Tagalog	B
7. Garde, Lorna	20-29	DLSU, 3rd BS Math/Phy	Tagalog	-----	Tagalog	B
8. Tuazon, Mamerto C.	20-29	MIT, 5th Civil Engrg	Tagalog	-----	Tagalog	B
9. Tumaliwan, Jessie James	20-29	MIT, 5th Civil Engrg	Tagalog	-----	Tagalog	B
10. Villalon, Zenia Josefina	20-29	DLSU, 3rd BS Math/Phy	Tagalog	-----	Tagalog	B

V. MATHEMATICS (continued) A. Students

Name	Age Range	School/ Year/Course	First Language	Second Language	Home Language	Questionnaire Used
11. Bernal, Paterno B.	20-29	MIT, 5th Civil Engrg	Ilocano	Tagalog	Ilocano	A
12. Dungca, Jose M.	20-29	MIT, 5th Civil Engrg	Pampango	Tagalog	Tagalog Pampango	A
13. Ferrer,	20-29	DLSU, 3rd BS Math/Phy	Pangasinan	Tagalog Ilocano	Pangasinan	A
14. Leon, de Lorenzo A.	20-29	MIT, 5th Civil Engrg	Ilocano	Tagalog	Ilocano	A
15. Torres, Adrian	Below 20	DLSU, 3rd BS Math/Phy	English	Tagalog	English	A
16. Alviso, Julie T.	20-29	MIT, 5th Civil Engrg	Ivatan	Tagalog	Ivatan Tagalog	B
17. Cruz, Arnold V.	20-29	MIT, 5th Civil Engrg	Pangasinan	Tagalog	Pangasinan	B
18. Dizon, Cecile R.	Below 20	DLSU, 3rd BS Math/Phy	English	Tagalog	English	B
19. Palanca, A.	20-29	DLSU, 5th BS Math/Phy	Ilongo	Tagalog	Ilongo	B
20. Name Withheld	20-29	DLSU, 5th BS Math/Phy	English	Tagalog	English	B

V. MATHEMATICS (continued) B. Professors

Name	Age Range	School/ Department	First Language	Second Language	Home Language	Questionnaire Used
21. Agustin, Juliana S.	20-29	MIT Math Dept	Tagalog	-----	Tagalog	A
22. Dimaano, Bienvenido S.	50-59	UP Math Dept	Tagalog	-----	Tagalog	A
23. Gabriel, Presentacion	40-49	DLSU Math Dept	Tagalog	-----	Tagalog	A
24. Gomez, Nestor B.	40-49	MIT Math Dept	Tagalog	-----	Tagalog	A
25. Leodones, Jovita H.	20-29	MIT Math Dept	Tagalog	-----	Tagalog	A
26. Mamaril, Josephine R.	20-29	MIT Math Dept	Tagalog	-----	Tagalog	B
27. Name Withheld	20-29	MIT Math Dept	Tagalog	-----	Tagalog	B
28. Quimpo, Norman	30-39	Ateneo Math Dept	Tagalog	-----	Tagalog	B
29. Reyes, Estela M.	20-29	MIT Math Dept	Tagalog	-----	Tagalog	B
30. Torres, Herminia B.	30-39	DLSU Math Dept	Tagalog	-----	Tagalog	B

V. MATHEMATICS (continued) B. Professors

Name	Age Range	School/ Department	First Language	Second Language	Home Language	Questionnaire Used
31. Cabison, Susana G.	20-29	MIT Math Dept	Ilocano	Tagalog	Ilocano	A
32. Cablayan, Frances B.	20-29	MIT Math Dept	Bicol	Tagalog	Bicol	A
33. Dizon, Aquilino C.	Above 60	MIT Math Dept	Ilocano	Tagalog	Ilocano Tagalog	A
34. Gonzaga, Louis G.	20-29	DLSU Math Dept	Ilongo	Tagalog	Ilongo	A
35. Leon, Domiciano P.	40-49	MIT Math Dept	Ilocano	Tagalog	Ilocano	A
36. Name Withheld	30-39	MIT Math Dept	Ilocano	Tagalog	Ilocano	B
37. Name Withheld	30-39	Ateneo Math Dept	Pampango	Tagalog	Pampango	B
38. Name Withheld	40-49	Ateneo Math Dept	English	Tagalog	English Tagalog	B
39. Naranjo, Celedonia M.	30-39	MIT Math Dept	Pangasinan	Tagalog	Pangasinan Tagalog	B
40. Vallar, G.	30-39	DLSU Math Dept	Visayan	Tagalog	Visayan	B

V. MATHEMATICS (continued) C. Practitioners

Name	Age Range	Place of Work	First Language	Second Language	Home Language	Questionnaire Used
41. Balaoing,	20-29	Service Instructor, DMG Training Center	Tagalog	-----	Tagalog	A
42. Calma, Lor	40-49	Architect Makati	Tagalog	-----	Tagalog	A
43. Banaria, Alfredo O.	40-49	Corporate Auditor, R.C. Silverio Corp	Tagalog	-----	Tagalog	A
44. Mercado, Jose	40-49	Civil Engineer City Hall, Mla	Tagalog	-----	Tagalog	A
45. Perseus, Phelia	40-49	BSME, Supervisor, Diesel Mart, Makati	Tagalog	-----	Tagalog	A
46. Felix, Manuel P.	30-39	Engineer GSIS	Tagalog	-----	Tagalog	B
47. Santos, Ricardo	30-39	Civil Engineer Padilla Bldg. Makati	Tagalog	-----	Tagalog	B
48. Vergara, Wilfredo	30-39	1st Vice-Pres. FEBTC	Tagalog	-----	Tagalog	B
49. Gutierrez,	30-39	Elec. Engr. Adrian Wilson & Asso. Makati	Tagalog	-----	Tagalog	B
50. Depante, Pompeyo H.	40-49	Civil Engineer Monark International, Inc.	Tagalog	-----	Tagalog	B

V. MATHEMATICS (continued) C. Practitioners

Name	Age Range	Place of Work	First Language	Second Language	Home Language	Questionnaire Used
51. Umila, Leo P.	30-39	BID Associate FSDC	Ifugao	Ilocano Tagalog	English Tagalog	A
52. Name Withheld	30-39	Engineer, J.A. Filipina Construction	Hiligaynon	Tagalog	Hiligaynon Tagalog	A
53. Nabejet, Vicente A.	30-39	Provincial Engr.	Ifugao	Ilocano Tagalog	Tagalog	A
54. Sarmiento, Constante	20-29	Civil Engr.	Ilocano	Tagalog	Ilocano Tagalog	A
55. Torralba, Anastacio	40-49	Eastern Pacific Steel & Pipe Corp	Visaya	Tagalog	Tagalog	A
56. Carpio, Hermenigildo	40-49	Civil Engr. Quezon City	Bicol	Tagalog	Bicol Tagalog	B
57. Fondervilla, Honesto C.	30-39	Operations Engr., BRC, Limay, Bataan	Visayan	Tagalog	Tagalog	B
58. Gupana, Anthony O.	20-29	Civil Engr.	Visayan	Tagalog	Visayan Tagalog	B
59. Name Withheld	30-39	Civil Engr. Quezon City	English	Spanish	Spanish English	B
60. Manaloto, Benjamin P.	30-39	Operations Engr., BRC Limay, Bataan	Pampango	Tagalog	Pampango Tagalog	B